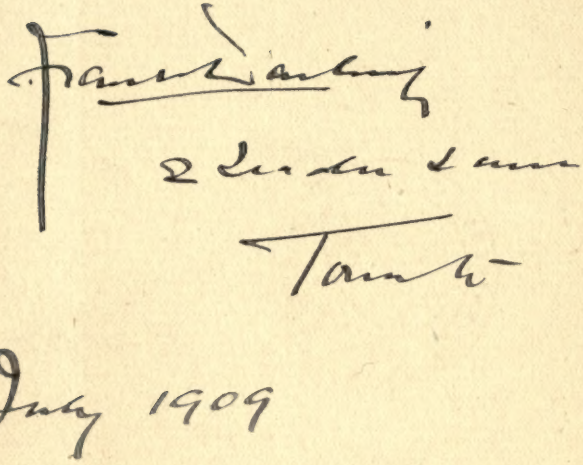
THE ARTS CONNECTED WITH BVILDING

LECTVRES DELIVERED AT CARPENTERS HALL LONDON WALL BY RWEIR SCHVLTZ EGVY DAWBER F W TROVP A ROMNEY GREEN C F A VOYSEY M H BAILLIE SCOTT CH^S SPOONER LAVRENCE A TVRNER AND J STARKIE GARDNER &c



July 1909

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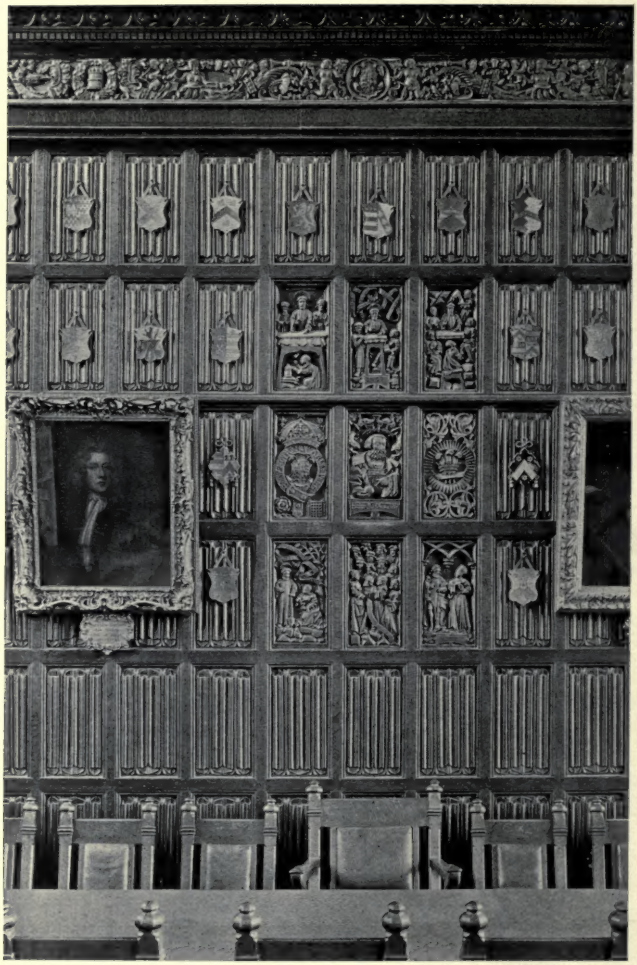

AN EXAMPLE OF OLD WOOD PANELLING.

Magdalen College, Oxford.

THE ARTS CONNECTED WITH BVILDING

LECTVRES ON CRAFTSMANSHIP AND DESIGN DELIVERED AT CARPENTERS HALL LONDON WALL FOR THE WORSHIPFVL COMPANY OF CARPENTERS

by

R·W·Schultz C·F·A·Voysey
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Edited by T·Raffles Davison

With 98 Illvstrations of Old and Modern Work

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INTRODUCTORY NOTE.

THE purpose of these lectures is neither antiquarian, literary, nor academic. Their institution by the Carpenters' Company and their publication aim to stimulate the ambition of craftsmen towards a high ideal of attainment. It may also be hoped that they will encourage a belief in others as to the possibilities of modern craftsmanship.

The arts which go to the creation of beautiful buildings should occupy the hands and thoughts of thousands if properly encouraged by the public, and would, if rightly directed, do much to add to the vitality and interest of modern architecture. Beautiful brickwork, plaster, woodwork, and metalwork ought to be within the reach of thousands who have now to be content with characterless, commonplace, mechanical productions. If, in the first place, we can secure honest, simple, and expressive work, directed by good design, we may surely hope the public will respond by encouraging a demand for it.

The gentlemen who have given these lectures by request of the Carpenters' Company are amongst those prominently known for their study of practical craftsmanship and the right use of materials in building. They are earnest in their desire to see a revival of the best traditions of craftsmanship from past times, and have endeavoured to impart some of their enthusiasm both by precept and example. They would not have us believe that either design or craftsmanship is in itself sufficient for good results, but insist that the designer and the craftsman must work in unity of belief as to the right and appropriate use of materials. All the marvellous varieties of effect which may be got out of

the various crafts cannot be learned without the examples of past work to guide us, and a sympathetic use of materials. These lectures should stimulate our desire for knowledge, as well as our efforts to obtain the best results from each material employed.

The world is full of beautiful examples of well-applied art, only a small part of which many of us can ever hope to see, but the principles and aims which have guided their production are open to us all. It is a good ambition to mould materials into forms of enduring beauty, and the development of artistic individuality is one of the most beneficent forces in the world.

In the following pages are examples, not only of fine old work, but of excellent modern work as well. The Arts and Crafts movement has done something definite to stir in people a belief as to the value of beautiful craftsmanship, but it probably also to some extent obscured the first essential of general design, good distribution of parts and proportions, and proper reticence of detail. In much work inspired by the revival we saw detail claiming precedence over the whole, and general design subordinated to the interest of parts. In a good exhibition of building materials, an architect, properly trained, feels at once that a wise reticence and control must be exercised if a right value is to be obtained from their use. What we want to see nowadays revived is that sort of simple but expressive work which may get into the hands of comparatively poor people. And there is no reason whatever why people with small incomes should not be able to indulge in beautiful craftsmanship. Good wrought ironwork, woodwork, plasterwork, and leadwork ought all to be available from workshops where craftsmen might enjoy their work by putting some of their own individuality into it.

If there were enough stimulus in these lectures to encourage craftsmen to produce, and the public to buy, good work—and by that we mean good both in design and execution—the aim of the Carpenters' Company, as so forcibly expressed by the enthusiasm of the present Master, would have been fully accomplished.

It should be pointed out that examples of modern work have been included amongst the illustrations by the special wish of the Editor and Publisher in order to emphasise the fact that a genuine revival of good work has taken place, and also to show that those who have given these lectures have themselves taken a leading part in that revival. The illustrations, both of old and new work, are not in every case specifically referred to, but, though this was not practicable, they are all indicative of the spirit which inspired the subject-matter of the lectures. Thanks are due to the architects and designers who have kindly permitted the illustration of examples of their work.

It is also necessary to add that the lectures have been republished with the consent and cordial approval of the Carpenters' Company, though the writers are, of course, alone responsible for the various opinions expressed. They have been revised as far as practicable by the authors themselves, and are published in the sequence of their delivery. The subjects obviously suggest a much wider and fuller treatment directly they are put into book form, but in order that the lectures may come into the hands of those for whose benefit they are primarily intended, a strictly defined limit of size and cost is inevitable.

T. RAFFLES DAVISON.

Kingshaw,
Woldingham,
Surrey.

June 1909.

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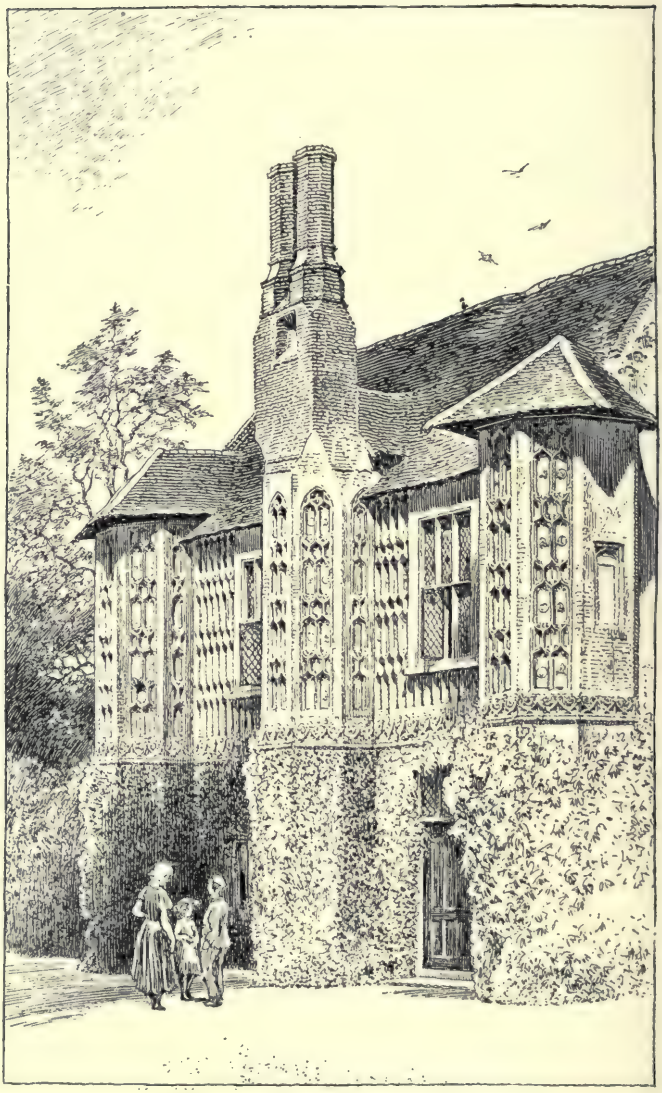


AN EXAMPLE OF BEAUTIFUL OLD BRICKWORK.

DRAWN BY T. RAFFLES DAVISON.

LECTURES I., II., AND III.

REASON IN BUILDING; OR, THE COMMONSENSE USE OF MATERIALS

BY

ROBERT WEIR SCHULTZ.

Lord Manners' House, New Forest.

Prof. W. R. Lethaby, Architect.

REASON IN BUILDING; OR, THE COMMONSENSE USE OF MATERIALS.

I.

IN commencing this series of lectures, I may perhaps be permitted to congratulate the Master and Court of this Worshipful Company on their foresight and enterprise in attempting to tackle this difficult question of the decay of apprenticeship in the crafts, and in their endeavour to try in some respects to mitigate the evils liable to arise in consequence, and I should like to say further that I am convinced in my own mind that the only really satisfactory training in the crafts must always be in actual, practical touch with everyday work. We hear a great deal nowadays about extending the age for leaving school to fifteen or more. I ask, what good is this going to do? It seems to be the great idea now to divide education up by sharp subdivisions. We have elementary education, secondary education, technical education, University education, and so on. It appears to be taken for granted that there is no such thing as education outside schools or colleges. I am inclined to the opinion that if it were not for certain defects in so-called human nature, there would be no need for schools at all. Schools are principally established to enable the elders to get out of their natural and individual obligations and duties to the children—duties which, of course, circumstances often make it impossible for them, under present conditions, to discharge, however much they may be willing to do so. Has there ever been any better elementary education than that obtained by a child at the mother's knee, or, in domestic economy, than that learnt by "helping mother"? Now we have domestic economy taught in Board Schools, and through County Council lectures given by those who are usually not mothers, and who often have not even a real home of their own.

It is no good, however, in our present complex state of civilisation talking about primary conditions, but, assuming that the best practical education can only be got in actual touch with practical work, how can this be most satisfactorily obtained under modern conditions? It seems to me that the real solution of the problem must come through the crafts themselves, and through their own organisations, or through organisations intimately associated with them, and we must all be glad that the Ancient and Worshipful Company of Carpenters, in conjunction with other City Companies, has been for years past interesting itself in the matter, and that it feels, in spite of what has been done, that a great deal remains still to be accomplished.

It is well that some of the old City Guilds should still show their connection with, and interest in, their own particular crafts, and the crafts associated with them, and I hope that the outcome of these lectures may be an effort to organise some scheme for dealing with the matter in practical form more effectually. Now, while many of the old guilds still exist, they are not always in close touch with the crafts from which they originally sprang, and from which they take their names, and there are more modern associations which have usurped some, at least, of their ancient functions, and these modern associations must not be ignored. I allude to the Trade Unions. Now, it is not outside the bounds of possibility that these Unions may in time come to consider the question of the training and efficiency of the men composing them, and that craftsmen will have to show, as of old, that they know their craft thoroughly, before they are admitted to full membership of their Union. From this it would be but a step to their coming in to help to organise the training, or, at least, to having some authoritative voice in the matter; and, indeed, such a movement has already begun, as we shall see when we consider, as I propose we should now do briefly, the present condition of things.

The general opinion seems to be that the apprenticeship system is doomed, and may soon become a thing of the past, at least in its old form, and one is tempted to ask what is the community trying to put in its place, and is the substitute likely to be an efficient one? We hear a great deal about secondary technical schools and advanced technical schools, built and kept up at the expense of the ratepayers, and

splendidly fitted up with all the latest tools and machinery. (We must not ignore the possibility of the ratepayer beginning to kick at all this in time.) At these schools the young would-be craftsman finds everything ready to his hand, and

Timber Roof to a Hall at Croydon.

W. Curtis Green, A.R.I.B.A., Architect.

starts to learn his or her work under, what look to be, most favourable circumstances. I am inclined to think that the tendency seems to be to make things too easy for these young learners, so that when they come to take their part in the rough and tumble battle of life, they are likely to be wanting

in many things, as, *e.g.*, resourcefulness. But I must admit that in the best schools there is an endeavour to guard against this, in fact, in some of these, a boy learning a craft is often turned on to make his own tools as he goes along.

Now, who are the people who are engaged in training these youths and maidens? At the beginning of the movement, practical craftsmen were brought in, but these are already falling out, and their place is being partly taken by school-trained masters, who have little actual experience of trade conditions, and of workshop routine; to a certain extent, however, the teachers are still men who have once been craftsmen, but who, in many cases, have ceased to work practically at their craft, and who are, consequently, probably getting out of touch with the actual workers. In point of fact, technical schoolmasters are rapidly becoming a class by themselves—more of the master, and less of the craftsman.

There are (roughly classified) three systems of technical school training at work in London.

(1) The day school system. This is still in a somewhat experimental stage, but considerable hope is felt that, through it, may evolve a modern workable system of craft training. To these schools come the picked boys and girls from the Elementary schools—those who have gained County Council Scholarships.

(2) The second system is one under which, by arrangement with the employer, boys who are engaged in actual trade work are allowed to leave earlier in the afternoon than would otherwise be the case, and put in some time at school. There is considerable hope also for this system.

(3) Then there is the night school system. This is perhaps the one that has developed more than the others, but in my opinion it is likely to be the least satisfactory of any. Its disadvantages are very apparent. First, it overworks the student, throwing a great deal more work on him than an average constitution is likely to stand. It is rather hard that a growing boy or girl who has worked all day in a shop should be compelled to put in two or three hours, two or three nights a week (some work four), at a school, when, being tired, he, or she, is less receptive, and also becomes gradually less fit for daily work. One cannot wonder that many employers object to their boys attending these schools at all. On the other hand, the well-equipped school, warm, well-lighted, and with

lively, sympathetic companionship, has many attractions for the boy who is a serious student, and whose only alternative is perhaps a book in a cold attic; or the streets. In these schools, also, the teachers, who may be actively employed in workshops during the day, being also tired, are less likely to be able to give the best instruction they are capable of imparting.

Now as to the position of the trades and crafts in relation to these schools, I am informed that in some cases the L.C.C.

Interior of a Village Hall at Shorne, Kent.
R. Weir Schultz, Architect.

are being advised, on the matter of technical education in the crafts, by committees on which both the employers, the employees, and the council have representatives, and all questions concerning the education in the particular trades are submitted to these committees, who advise on such points as, *e.g.*, the selection of teachers, the course of instruction, the equipment of the schools, the distribution of scholarships, and the formation of classes in suitable localities, &c. The movement is growing, and as other trades come in, it is bound to increase

in activity and in scope. Perhaps—who knows?—through this may come salvation—perhaps not.

As these lectures are intended in the first place for craftsmen engaged in actual trades connected with building, others must bear with me if I dwell too much in detail on the so-called practical points; on the other hand, the practical craftsman must make due allowance for the fact that, as an architect, I cannot profess to be so thoroughly acquainted with all the minutiæ and detail of each craft as a fully trained member of it ought to be. At the same time, an architect who is interested in his art, and who has endeavoured to keep his eyes open, and who has also learnt some things from dire experience, may be not the worst person to lend a helping hand to the learners in the crafts, and to put them on the way towards making the most of what opportunities come to their hand.

There are various ways of gaining experience of the useful sort, and I will endeavour to enumerate a few. (1) By the study of the methods of the old builders as exemplified in their works; (2) by contact with, and learning from, the older generation of craftsmen, now, alas, rapidly disappearing; (3) by keeping one's eyes open generally, learning from one's own endeavours, and profiting by one's own mistakes and those of others.

The old craftsmen were brought up under a traditional system of apprenticeship, going back as far as history, and further—a system where established method and custom were handed down as a matter of course, and where any new idea was properly weighed and considered before being adopted, and becoming part of the tradition of the craft. As Professor Lethaby so clearly puts it in his book on "Mediæval Art": "A great artist might make a little advance, a poor artist might stand a little behind, but the work as a whole was customary, and was shaped and perfected by a life experience, whose span was centuries."

It is a common fallacy to consider that the Renaissance of the sixteenth century killed the mediæval craft tradition. It certainly considerably affected it, but such deep-rooted tradition is hard to kill, and in many places it still lingers even to-day. I know places in the country where the mason builds still as his forefather did, where the carpenter still selects his trees in the wood, has them cut down, and sawn on the spot, and

converts them, with adze, &c., into beams and posts for his buildings; where the plumber still casts his lead and seams his pipes, and glazes his windows in the old leaded kames made on the spot, and so on, through the other trades, but these

An Old Timber Roof—Interior of the Corn Hall at Rouen.

are the older men, and in very few cases are the young ones following in their footsteps. In most of the towns, especially the large modern ones, of course few of the old traditions obtain, and they, such as they are, have been kept up principally by the older country trained men, who have migrated

thither; but in London itself, it is extraordinary what still survives. I will instance only one craft—the wheelwrights. The chances are that if you look at those wonderful curved and chamfered waggons, which farmers still use in the country, you will find that the maker's name on them is generally that of a Londoner.

It is, perhaps, repeating a commonplace to say that the introduction of machinery has been at the bottom of a good deal of the trouble. It has revolutionised nearly all the methods of work in nearly all the trades, and I think I may safely say that, even after half a century and more, its true place in relation to the crafts has not yet been definitely established. One must still look forward in hope to the day when machinery will be the handmaid of the crafts, and the craftsman not the slave of the machine. There is great hope for the future in the development of the easy distribution of electric power, which, by making possible the use of small detached motors, may eventually tend to the breaking up of large factories and the establishing of small workshops again under more favourable conditions.

As to studying the work of the old builders, if you go about this in the right way you will be surprised how much you will be able to learn, but you must do it intelligently; you must try to get underneath the surface and endeavour to discover their reasons for doing things as they did—and there was generally a good, practical reason—and you must remember also that their conditions differed from ours, and that what was all right when they did it may be all wrong now. If this process of study teaches you to think for yourselves it will have been productive of good. Don't merely do as young architectural students of the past thirty or so years have been doing, make pretty, superficial sketches, or even measured drawings to scale. The latter are valuable as historical records, and as study of another kind, but they are by no means everything, and they don't often help you far along the way you ought to go, viz., to learn how to build honestly, reasonably, efficiently, and beautifully. Remember also that the old men were, after all, human; they were not infallible. They tried experiments occasionally, both in their composition and construction, and sometimes overstepped the mark; a craftsman conscious of his own power would occasionally venture too far. Some of the less easily comprehended things also may be put down to

their high spirits and delight in creation—in fact, to the joy of living.

Now as to learning from the older school of craftsmen still with us—and I find that nowadays, alas, it is usually only from the older men that one is likely to glean really useful knowledge—you will observe that a competent workman generally does a thing directly and straightforwardly, his work looks simple and right. If you ask him why he does this or that, he may probably tell you that he has always done it so, that his

A Riverside Tea-house.

R. Weir Schultz, Architect.

father did it before him, and his father before him, and you may be sure it is likely to be a good way of doing the thing.

As to learning from one's own experience and profiting by the mistakes of oneself and others, I should like to emphasise the wonderful effect of direct responsibility. A young man may work for years in an architect's or builder's office making drawings and diagrams of construction, &c., to be carried out by others, or not carried out at all, and he may gradually begin to think he knows a great deal about things in general (and this also applies to the young gentlemen in the schools), but

give that youth a piece of real work to do, for which he has to take the whole and final responsibility, and he will soon, if he has any sense, find how little he knows, and will really begin to learn. The incompetent person generally takes refuge in blaming every one but himself, although probably he is actually the most to blame. Have you ever noticed how a child brightens when he is given a job to do all on his own; what pleasure and delight he takes in it? This is the craftsman instinct, natural to almost every one, and which only wants encouragement of the right sort to bear good fruit.

Viollet le Duc, the famous French architect, says in that most excellent article on Construction in his "Dictionary of Architecture": "Architectural construction is the employment of materials according to their quality, and their adaptability, with the idea of satisfying a want by the most simple and solid means, giving to the constructed object the appearance of durability and proper proportion, subject to certain rules imposed by the senses—reason and human instinct." These are the points I most specially wish to emphasise, viz., that all good building must show durability, proportion, and reason. It may have nothing about it that can be called architecture as architecture is called nowadays, but it is probably much more likely to be entitled to be classed as good architecture than the bulk of the structures that are going up all round us at the present day.

We hear a good deal of nonsense talked, especially by architects, about the difference between building and architecture, but I am not concerned to argue this point. I may say, however, that my own opinion is that there will be little chance of seeing really good living architecture again until architects of the general type that are turned out at the present day cease to exist. Good architecture can only grow out of reasonable building, and reasonable building can only come from a sound constructive basis and a real knowledge of materials, their uses and limitations. New methods of construction are very much to the fore, and these when properly assimilated may form the basis from which a sensible, straightforward new building tradition may develop—a tradition that will incorporate all that is best and most suitable for modern requirements from old methods.

Let us consider for a little the question of materials, and on this connection I will quote again from that excellent article on Construction by V. le Duc. He says: "The methods of the constructor must necessarily vary according to the nature

of the materials, the means at his disposal, the requirements which he must satisfy, and the civilisation in the midst of which he is placed." This puts the whole matter in a nutshell. In old days, owing to difficulty and cost of transport, the materials on the spot were generally those employed, and hence a type of building grew up which became, as it were in time, indigenous to a district, and, one might almost say, represented the civilisation of that district. Hence in a stone country like the Cotswolds, or Somersetshire, the buildings were almost invariably built of stone, with, usually, stone-slated roofs: in Kent, Surrey and Hants, where timber and bricks

A Summer-house in a Park, with Circular Thatching.
R. Weir Schultz, Architect.

were both plentiful, a timber and brick type grew up, with tiled roofs; in Herefordshire and Cheshire one finds the type mostly timber framing with wattle-and-dab filling. Other districts had their own distinct types, and one feels that they fit in with the natural surroundings. Now, at the present time, facility of transit and the increase of large manufactories of building materials at various points, out of all proportion to the needs of the district, make the distribution easy and cheap, and it is now often cheaper to build, say, a cottage, with materials brought from a distance than with those close at hand. And this is a point that cannot be ignored; reasonable

cheapness in building is an economic necessity. In most cases it means the difference between profit and loss, between improved conditions and squalor. For instance, I have known cases where a question of £20 on the cost of a cottage meant the retention of an old, ramshackle, damp, unwholesome den, instead of the erection of a new, healthy dwelling. It would therefore be an affectation to insist, that in all cases, only local materials should be used; but there is always a workable, reasonable, commonsense solution to every problem, and here I would say that it consists in adhering, as near as may be, to the general influence of the type of the district, and not using materials that will jar. What is more hideous and out of place in the Cotswolds, for instance, than a red brick house covered with purple Welsh slates, as I am sorry to say one sometimes sees there, whereas it would have been just as easy, if brick were really the cheapest material, to have either rough-cast it, toning the rough-cast to a tint that would harmonise with the prevailing colour of the local stone, or to merely put on the brick a thick wash of lime and sand coloured as the other. Then as to the roof, a little trouble would have found a grey slate that would have cost little if any more than the other.

Then as to what is known as half-timber work. In the old days the timber was there in quantity for the cutting, and was in many cases the only material available. It was therefore used in a straightforward way as framing, which was filled in with whatever material was handiest, sometimes brick, when such could be got (it was probably dearer than using wood framing to build wholly in brick in those days in some places, and hence it was only used for infilling); or hazel twigs criss-crossed to form a centre, and then covered with dab, a form of plaster, varying in composition according to locality and material easiest available. How they managed to keep the wet out of these thin, old framed structures is somewhat of a puzzle, but they knew exactly when to cut down their trees and use them in those days, and they knew the right way to use their lime as a protective coating. Other materials were used in various localities, and these were almost in all cases the cheapest and handiest materials available. Such were, for instance, "cob," *i.e.*, clay mixed with straw and sand or other similar material, according to locality, and chalk used in blocks. Both these materials make very good walls, and are still used

in various districts, but of course the walls have to be proportionately thicker, and the exterior must be faced with limework of some sort to keep off the action of the weather. By-laws are often prohibitive of good building, and the by-laws of certain districts may be almost styled a curse, as they unnecessarily increase cost and prevent reasonable building.

Then as to roof-covering. In the country districts, and even in the towns, thatch must have been at one time almost universal, at least where grain was grown in the immediate vicinity, or reeds or heather were easily procurable. It was the cheapest,

Stables at Stoneywells, Leicestershire.

E. W. Gimson, Architect.

most easily put on, and most easily renewed, and it had other advantages, being warm in winter, and cool in summer. Any one who has lived in a thatched cottage will agree as to the comfort. Now the art of thatching has very nearly died out, in some places it being almost impossible to get a thatched roof repaired, and there is perhaps only one man in the district who can do it, and he is an old man who thatches ricks. Even this is going out, as ricks are covered with tarpaulin, or galvanised iron sheets. Norfolk reed-thatching is well known and appreciated. The best thatch is done with

salt-water reeds. Thatching is now, however, an expensive luxury, and in many cases impossible, owing to by-laws and insurance companies' rules.

I have referred to wood framing as the natural type of construction in wooded districts, even the barn being made of substantial thick wooden posts and beams. There are still some districts where local wood is comparatively easily procurable in bulk and economically workable, and here the old method of construction still obtains, but in most places the wood most easily obtainable is foreign imported wood, sent over sawn into scantlings 11 in. by 3 in., 9 in. by 3 in., 5 in. by 2 in., and the like. Where this is so, it is therefore somewhat of an affectation to use a form of construction which is not economical, especially where cost is a consideration. Some three or four years ago I had to build a large hall at Cardiff for a University Settlement, to hold a lot of people, at a minimum of cost, and I thought that the cheapest form of construction would be by forming the roof and posts out of ordinary deals bolted or spiked together. I worked out my ideas and found them possible of realisation at a minimum of cost. The following year I had to build a village hall in Kent for a very small sum. The same idea seemed to me the most economical. Here the timbers are all 5 in. by 2 in., the cheapest stock size (see p. 7). My friend, Mr Curtis Green, shortly after that had a large hall to build at Croydon under somewhat similar conditions, and he evolved a design based on my original Cardiff idea, but very much finer in general line and proportion (see p. 5). You will see from this what can really be done in the way of good construction with the ordinary commercial materials at hand in a simple and straightforward way. This is an example of the commonsense use of modern materials without any nonsense, affectation, or humbug. The example of a mediæval hall (see p. 9) is shown as a sample of what was at that time the usual method of timber construction, the reasonable use of materials for the time.

REASON IN BUILDING; OR, THE COMMONSENSE USE OF MATERIALS.

II.

We will now proceed to take up the principal crafts connected with building, and in doing so endeavour to discriminate generally in how far it is possible to deal with the materials suitable to these crafts in an honest, simple, effective, and straightforward manner. I regret to say that in much of the work that is carried out nowadays, materials are often used in an entirely unsuitable manner, to the great detriment of the structure, both as a work of art and as a reasonable piece of construction. As Professor Lethaby has so truly remarked: "Art is man's thought expressed in his handiwork," and the large amount of bad art and false construction with which we are surrounded is largely due to the want of right training, often to the entire absence of real training at all. We find a half-trained mind striving after effects of which he does not understand the significance, or attempting the impossible. There is a general note of self-conscious inefficiency in the average work of the time. In saying this, however, I don't want you for a moment to suppose that I have the temerity to venture to attack and condemn all that we see around us to-day, as I quite realise that much fine work has been done recently, and is being done at the present time, but such work is more or less exotic, is being done by a comparatively small number of people, is more or less individual, and does not in any way represent the general average of thought and execution.

I am sorry to say that a good deal of this is, in my opinion, due to the false position of architects at the present day, and to the wrong lines on which, as I venture to think, they have been trained, but, here again, don't go away with the impression that architects are not cognisant of this. I am glad to say many are, and earnest endeavours are being made to grapple with the evil. I ask you, however, how is it possible to hope for really satisfactory results as long as young architects

are trained mainly in front of drawing-boards in stuffy offices, or even in schools and colleges, without being in real touch with practical work, for, after all, an occasional visit to a job, or an excursion of students to a building in progress, while excellent things in their way, are not by any means sufficient to imbue the young mind, however receptive it may be, with the real feeling for material and construction which should be absorbed gradually and unconsciously in continued contact with practical work. It is not to be wondered at that some of the few best architects of our immediate past have been those who have come from or gone through the workshop, or the builder's yard, and who consequently have brought real practical knowledge to this task of grappling with the problems of design and composition. I have in my mind the work of the great Mr Bentley, the architect of the Roman Catholic Cathedral, Westminster. There is a certain quality in that work that you do not find in the work of those who do not understand materials and methods of construction.

Take the average type of the young architect of to-day. He goes from school or college to the office of, say, an architect in good professional practice, where, for three or four years, he picks up what knowledge he can in contact with designs on paper. Occasionally he is taken, or allowed to go, on a visit to a building in progress, where he has a look round. If he is at all keen, he keeps his eyes open, and asks a few questions of the foreman or clerk of works, but how seldom does he stop there any length of time and follow the course of the work, and see things day by day in the actual doing, and absorb the influence of the structural use of the materials, &c., and how far less seldom does he take off his coat and try to do something himself, if only for the purpose of finding how difficult it is to do! Yet this is the youth who, at the end of three or four years, if he has friends and influence, settles down to design buildings and instruct practical men how to do their work; often in an autocratic way; for, after all, isn't the architect looked upon as the "boss," and doesn't the contract say that he is to be obeyed and his directions followed implicitly in every respect?

I remember once asking a joiner why he did a certain piece of joinery out of the solid and did not frame it up. His reply was: "Why, sir, I thought so too, but last time I did that sort of thing that way, Mr Architect came along, and gave

me a swearing. A man does not know nowadays when he is right or wrong, as every architect has different ideas, and one is not supposed to think for oneself." Sometimes, if you ask a man why he didn't think, he may answer, "I ain't paid for thinking."

Fancy if Master Henry, of Westminster, the King's Master Mason in the thirteenth century, or Master Alexander, the King's Carpenter, had been supplied with full-size details, prepared by an office-trained theorist, to show them how to do their mouldings, or construct their arches or roofs! These men, in fact all the men of their time, were thoroughly trained craftsmen, who started at the beginning and worked their way up to their high position by sheer ability; for, understand that the King's Master Craftsmen in that so-called barbarous thirteenth century were great men in the land, and took high rank, even with the nobles of the land, but they were practical men all through, from head to toe, and from youth to age. If you want to know how our famous historical buildings were erected, and what manner of men they were who had the doing of them, read that delightful book by Professor Lethaby, "Westminster Abbey and the King's Craftsmen: a Study of Mediæval Building," and then you won't be surprised how it is that building in these so-called peaceful, prosperous, and civilised times of to-day falls so far short of what it was in an age when the bulk of the men of England were supposed—and I think you will find, if you really investigate, very erroneously supposed—to be in a state of vassalage and serfdom.

Now, to come back again to the latter day architect, I do not wish to say for a moment that an architect must not have any theoretical training. There is, in fact, much that he can learn quicker and better in schools and colleges, such as constructive science, for instance. We are told by many that an architect need only have a rudimentary training in science, but surely this is a mistake. The architect of the future will have to be, to a considerable extent, an engineer. He will have, indeed already has, to deal with new scientific methods of construction, such as are being adopted for large buildings in cities and large manufacturing and mercantile centres, methods involving a considerable amount of mathematical knowledge exact calculation, and considerable technical skill, if great waste of material and extravagance in cost is not to result.

If a real living type of architecture is again to arise, it must

come, as I have already said, through the skilful, reasonable, and sound use of materials, properly thought out and put together on a clear scientific basis. The so-called artistic part will take care of itself. All good art is unconscious, and part of the trouble of to-day is the self-consciousness of everybody and everything. A man does not want to be an artist with a capital A in order to be able to erect a beautiful building, but he does want to be a constructor—get your knowledge right and your art will come. Have you ever noticed how often the back of a building is the most interesting part, largely because it is the natural and unconscious outcome of the real conditions of the problem—for every building is a problem—and shows no mere striving after mere effect as such?

British pre-eminence in modern shipbuilding has been attained by dint of hard experience and by learning through many failures. The Germans entered late into the field, and almost at once came to the forefront through the tremendous thoroughness of their scientific training. So with a sound scientific basis in our modern constructive education we may hope to establish a real modern building tradition. In such things as scientific construction our modern architects are, with a very few notable exceptions, either in the hands of people who, I think, call themselves "constructive engineers," or of the commercial firms.*

But let us get to our crafts, and I think it will suit our immediate purpose if we consider briefly, and I fear rather generally, the various works that go to the erection of a building, and take them roughly in the order in which they would naturally come.

With regard to foundations, there are many points that may call for special consideration; for instance, the nature of the subsoil—a most important matter. If you have a good gravel bottom, or one of firm sand, or even good, hard loamy earth, no difficulties need occur, and conditions may be considered normal; with rock, expenses may have to be incurred in levelling for base of wall, but if the rock is not close to the surface, a level bed may probably be most economically obtained by merely clearing the soil off the rock and levelling up with con-

* During the course of the lecture, Mr Schultz spoke impromptu at some considerable length on the nature of various materials, their proper application, limitations, &c. It has been impossible to give more than some fragments of this talk in the present collection.

crete. Clay is troublesome, and here you may have to take your foundation down a good depth to make sure that your building will be stable. Running sand is probably worst of all. It is always wise to endeavour to ascertain the nature of the strata beforehand, and unless definitely tied to an actual fixed place, as in a town site, to avoid unsuitable spots. I am afraid this is not always considered.

It is customary now to start the foundations of the walls on a bed of concrete. Here again a knowledge of local materials available is essential. The nature of lime and sand vary so much, as does also ballast, and unless you can afford to go further afield for the best stuff, you must be content with what you find on or near the site, but use it reasonably and in a sensible way. And in this connection one can often learn a good deal from the man on the spot, the local labourer, who has worked in the locality for years and knows just exactly what can be done with, say, the sand, how much lime it needs, and so on. Cements and limes should also be carefully studied and their qualities ascertained before using.

Now, I would like to refer here for a moment to a craft which has very little attention paid to it except by those immediately concerned, hence it has remained an unconscious living craft almost till to-day, at least till a year or two ago, but, alas, is now being elbowed out by "Scotsmen" (I don't mean the people—on them I am not in a position to venture an opinion). "Scotsmen" are not always thoroughly understood in this southern clime, as witness what nearly happened at the top of St James Street in a gale last winter. Pretentious architectural erections are now becoming a good deal the vogue for scaffolding, largely built to catch the public eye and to act as advertisements.

Have you ever observed the straightforward simplicity and directness of the old traditional unpretentious scaffold framework constructed of long straight Norway spars, securely set on the edge of the pavement in barrels filled with sand, with braces and struts put where they were actually required, and all skilfully secured with the most wonderful scheme of roping—exactly right and fit for its purpose? These scaffolds were erected by scaffolders, practically labourers paid at labourers' rates. Now it requires a highly trained scientific engineer to design a proper scaffold, and it has to be erected from elaborate working drawings and has to pass the L.C.C.

With regard to stonework, know your stone before you use it. See how it is quarried if possible, and, in places where it is the customary local building material, study the effects of time on it in old buildings and note what to avoid. If you know your stone you will understand what you can do with it satisfactorily and so avoid mistakes.

Then as to mouldings, one stone will stand fine mouldings, in another they are out of place.

Copings and sills should if possible be formed of hard stone, if not, it may be necessary to put lead over the top of all projections if the stone is not entirely reliable. If this is so, have as few projections as possible in such cases.*

Stone also will flake unless it is properly laid in its natural bed. The effect of the weather on stone also should be studied. Some stones change their colour, becoming quite black, as, for instance, York stone in London and even in Yorkshire towns. Portland stone I have always looked upon as the marble of London. It is finer than any marble when it weathers that beautiful white as in Wren's London steeples.

In studying old examples of stonework pay particular attention to form both in general composition and in the treatment of detail in its relation to the nature of the stone which has been used. And don't, in your own work, copy and use unintelligently in stone of a certain nature, say, details taken from a building in another part of the country which has been built with stone of an altogether different character. Get inspiration, certainly, from old work, but attempt to realise what the old men who did it had in their minds, and their reasons; get behind the surface. If their ideas apply to your case, you may legitimately draw on that experience, but don't copy.

Granite is a material of an essentially *solid* appearance; use it, therefore, in exposed situations or on portions of buildings that are likely to get much knocked about, as at the street level in city buildings, &c. Build it solid, it will look solid, but not with too rough a surface and not bull-nosed. Don't form an *artificial* quarry face, but if it comes sawn from the quarry use it sawn or tool it legitimately. Sham roughness must be

* Here followed a dissertation on such questions as the depths of reveals in window and door openings, the nature of the suitable surface finishings, &c.: various typical stones were also referred to and their natural and traditional method of finish commented on.

Business Premises, Birmingham.
Prof. W. R. Lethaby and J. L. Ball, Architects.

avoided at all costs. Where granite comes easily and customarily in large blocks it is a pity to cut it small, as this implies extra labour, but great care must be taken not to spoil the general scale of the building by emphasising the size of the blocks, especially if other materials are used in juxtaposition to it.

Then as regards marble, the Greeks used this as constructive building material just as we use stone, and the Romans, when they became masters of the world, brought the more precious marbles of all colours from far and near, and used them to embellish their buildings, cutting the blocks into as thin slabs as possible, to be used for decorative purposes, not as part of the construction. They were arranged in harmonious schemes of colour, and the joints were clearly shown, and often emphasised—the ends of the slabs, for instance, at the corner, showing their thickness on the return face, and not mitred or covered over. They used their material, however, in a manner we might call extravagant on occasion, as, for instance, in the magnificent porphyry sarcophagi of the Emperors, now in the Vatican Museum at Rome, formed out of solid blocks. But when used in this way they made the solidity emphasise the splendour of the material.

Pillars also were used solid to look their actual strength. To case pillars would have been a mistake. When they wanted to case, they built piers of a reasonable size and cased them so that they were and looked right for strength.

I have seen to-day iron pillars cased round with marble, to try and make them represent solid columns—an entirely false note. The designer wanted the effect of solid marble pillars, but he obviously thought they would not be strong enough, and put in his iron to carry the weight.

In the use of marble as decoration, it is important to select the same so as to get a judicious and harmonious arrangement and grouping of colours. Do not mix marbles that are not in sympathy with one another. For instance, I have found that Norwegian and Swedish marbles do not seem to blend well with Greek and Roman, and I think they ought not to be mixed together.*

* The lecturer then made some remarks on the marbles of Attica and expressed the hope that, as they are being so much used in London now, they will stand our climate.

REASON IN BUILDING; OR, THE COMMONSENSE USE OF MATERIALS.

III.

I propose now to touch on the other principal crafts connected with building, and while it is impossible in the time at our disposal to dwell for more than a few minutes on each, I shall endeavour to draw your attention to certain points that have occurred to me, or have been brought to my notice, principally with the idea of directing your thoughts towards the importance of cultivating the faculties of critical analysis and detailed observation, and to the consideration of all points, however trivial they may apparently be, that bear on the right and economical use and application of materials. And I would like to say that while it is essential in the composition and design of a building or of a piece of craftsman's work, whether large or small, to get the general idea right, both in the composition and balance of parts, it is equally important to give particular and careful study and attention to all points of detail, as the success or otherwise of every piece of work depends not only on the careful balance and relation of each part to the whole, but also to the rightness, fitness, and harmony of every point of detail. I should like to say further, that I am afraid some of you may have got hold of the impression that I am assuming that none of you know anything at all about the matter I am dealing with. This is very far from being the case, but as these lectures are intended primarily for learners in the crafts, I have thought it well to attempt to deal with the simpler things in as plain and straightforward a way as I can. It is therefore with the learners that we are chiefly concerned, and to them principally I address my remarks, and I must ask the others to bear with me if I talk about matters which may, perhaps, seem to them the commonplace of everyday practice.

We will now take up the subject of brickwork. In dealing with bricks, as with other materials, it is well to begin by endeavouring to acquire some real knowledge about them. Get to know, for instance, what are the qualities that go to

form a good, sound, reliable building brick. Visit not one brickfield, but many. You will find that the earth from which bricks are made varies considerably in different localities, and that, of course, influences the colour, texture, and durability. You will also find that bricks are made in a variety of ways. But I am not going to tell you the different ways in which bricks are made, you must go and observe and learn this for yourselves. I might, however, just mention the names of a few varieties to start you on their track. There is, for instance, the old-fashioned London stock. Then, again, we have the old, traditional, country brick of the Home Counties, the hand-

Sandhouse, Witley.

F. W. Troup, Architect.

made, sand-faced, red brick so familiar to us all. We have also machine-made bricks of all sorts and kinds—"Flettons" from the Peterboro' neighbourhood, which are so largely used in London, and which are supplanting to a certain extent the old London stocks; white and yellow bricks from Suffolk; Bridgwater bricks from the West Country; Ruabon bricks from Wales; bricks from various parts coming under the common appellation of pressed bricks, wire cuts, &c. &c.

I think I am right in saying that the bulk of bricks for building purposes are now made by machinery of some sort. This does not necessarily mean increased durability, but it

usually does mean economy in cost of production, for machinery was no doubt introduced into brick-making originally for this purpose. The *good* manufacturer, however, has a reputation to keep up, hence he would consider durability to some extent as a factor; but keen competition may, perhaps, modify this point of view, as if bricks can't be produced to sell at a profit, the maker is not likely to go on producing them, and hence competition must to some extent in many cases influence quality.

The colour of bricks is also an important consideration.

Pickenham Hall, Norfolk.
R. Weir Schultz, Architect.

The nature of the brick-earth, as I have said, affects the colour to a very large extent, as also does the way the bricks are made. Much additional interest can be given to a piece of plain brickwork by considering colour, and using bricks of varying colours, either as a part of a set scheme, or by using bricks selected for soundness only, and just as they come from the kiln. There is a building in Mortimer Street designed by Professor Pite, which is a capital example of the successful result of a consideration of texture and colour in brickwork. The modern office-written specification very often says: "Bricks

to be selected for evenness of colour." Formerly first quality bricks were selected for soundness only, now they are selected for evenness of colour also, in order to meet this demand.

Have you ever examined an old brick wall and noticed the beautiful variety of colour in the different bricks composing it? What a charming bit of colour it all makes! Contrast them with a modern wall, perhaps built with bricks made out of the

Premises in Mortimer Street.

Prof. Beresford Pite, Architect.

same bed of brick-earth, and see the difference; the latter is usually hard and uninteresting, sometimes even looks as if it might have had a coat of paint, the colour is so even. Some years ago I had to get a house built in a brick district by a local builder, who also owned the brickfields. The bricks from the so-called *best* field were used for the house, those from the second best for the garden walls. The former were, of course, the higher priced, they were graded in qualities more

carefully than the other, evenness of colour being considered in this. I tried to get variety into the walls of the house with indifferent success. I fared better, however, with the garden walls; here the bricks were used just as they came out of the kiln, provided they were sound, and the effect is delightful in its added interest, through having legitimate variety of colouring. Shortly afterwards I had to build another house, also in a brick district. This time I went to the brickfield first and examined the bricks. I found that the so-called second quality brick was the better in every way. It was a good, sound brick, had

An Interior.

R. Weir Schultz, Architect.

delightful variety of colour, was the harder brick than the first quality, the more fully burnt bricks having been consigned to this heap, as they, of course, naturally varied considerably in colour. That piece of brickwork was a success. I find that a number of right-thinking architects now almost invariably use second quality bricks. Even in London stocks a wall built of "seconds" is a more interesting piece of brickwork than one built of "best selected stocks."

Of course, in patent kilns, with modern methods of burning, you don't often get the variety of colour you were wont to find amongst the bricks burnt in the old way. (Here was instanced

the old-fashioned kiln, in which wood was burnt, and where the alkali from the wood coming into contact with the bricks nearest to it produced a more highly vitrified effect, which added variety of colour.)

Good design in brickwork must allow for the reasonable limitations of the material. Forms that involve considerable extra labour in cutting should be avoided. Hence curved forms should be used sparingly, unless for reasons of added strength, as in arches. Then as to the moulding of bricks. Some of the old brickwork shows delightful moulded treatment, but, if looked into, you will find that this is generally built up with simple moulded forms the quarter round, the bull-nose, the splay, and the cavetto. Sometimes the bricks were cut and rubbed by hand, but in those days labour was cheap. Now moulded brickwork is expensive if properly done. You can get all sorts of moulded bricks nowadays, but the effect of work done with these is entirely different to the old, somehow, and the undue use of these should be avoided. If you want to emphasise parts of the design in this way, it is wonderful what effects can be got by simple means, such as slightly projecting courses — dentils formed of ordinary headers—diapers formed of same bricks projecting angle-wise as an ornamental course, or the use of tiles and bricks in combination, and so on.

Church at Lower Kingswood, East End.
Sidney H. Barnsley, Architect.

The bond of brickwork is of considerable importance primarily from the point of view of sound building, but it also affects the appearance of the finished structure. Don't forget this important point, and consider it carefully in deciding on such a matter as the size of your piers, the arrangement of your window openings, the depth of your bands, the forms of your cornice, and the like. The method of pointing should also be carefully considered. The modern specification often says that brickwork is to be finished with a "struck weather joint"; this is a hard joint drawn with a key or the point of

Brockhampton Church, Gloucestershire.
Prof. W. R. Lethaby, Architect.

the trowel, and slightly sloping in to allow of the water dripping off the lower edge of each course—I don't think it ever does, but in theory, of course, it ought. You don't find this hard-looking joint in old brickwork. My experience is that at any rate for country work, the best joint is a flush one. Lay your bricks with the mortar full bedded out to the face and cut off flush with the brick face with the side of the trowel, and you have a solid mortar joint through the wall.

The general sizes of building bricks allow for building your brickwork four courses to the foot, *i.e.*, four bricks and four joints, range one foot high. This is a very convenient

size, especially for paper designing of details. The face bricks in ordinary work range, of course, with the building bricks, but one can have bricks of various thicknesses, especially for fancy work, but if you use these with ordinary building bricks, see to it that the face is well bonded in with the rest of the wall, and this wants careful arranging and settling beforehand. Five courses to the foot make a very good wall. In many cases the old brickwork approximates to these proportions.*

Discrimination is necessary in the use of tiles for roofing. We all know the customary traditional local hand-made tiles which weather to a beautiful tone. When properly made they are as good and lasting a roof covering as you can have. When they are badly made, however, they are often semi-porous and absorb moisture, and crack and split. A demand, therefore, arose for a harder type of tile with an impervious surface, and so we have the Broseley tile, which has a semi-vitrified surface and keeps both its colour and surface intact. I don't want to decry the suitability and usefulness of Broseley tiles for buildings of certain kinds, but, in the country, the old type of tile seems to harmonise best with the natural surroundings, whereas the others strike a jarring note. Valleys, when made of ordinary tiles, may, perhaps, prove more satisfactory than specially shaped valley

* The lecturer then referred to Dutch bricks, sometimes used in England, also to Roman bricks. The use of bricks with flints and stone was also referred to, and the nice, simple effects to be obtained in garden walls, &c., by arrangement of brick in simple forms. The relative value of brickwork was dependent on the proportion in which it was used with other materials such as stone or flint, requiring different treatment in each case. St Luke's Hospital, City Road, was instanced as a good, sensible use of brickwork, whilst a large new building near it showed all the faults that were possible in the treatment. Following this, a reference was made to the beautiful results of rubbed brickwork with fine pointing, and of carving in brickwork, which was, perhaps, generally inappropriate, though it had traditions to back it up. Modelled ornament in brickwork was never very interesting. The mention of beautiful old chimney-stacks, corbels, and the position of the window frames in brickwork led on to the description of the coke-breeze lintels employed within the wall behind the brick arches to carry the opening inside. When these lintels had to be used over wide spaces up to some 8 or 10 feet, the coke breeze was reinforced with metal bars. Next, reference was made to terra-cotta, glazed bricks, and Carrara ware, and a doubt expressed as to whether, in point of view of durability or cleanliness, these materials were any great advantage over good, honest brickwork.

tiles, and when the workmen get used to doing valleys in this way an actual saving of cost may be effected. For ridges, half-round tiles are simplest. Where ridges abut on higher roofs, a ridge tile upside down placed at end of ridge throws water to the side and protects an otherwise weak spot.*

As the three lectures following this are devoted to "Woodwork," it is unnecessary for me to say much on the subject. In my first lecture I drew attention to the simple use of ordinary scantlings in the design and construction of roofs. I will now only mention one or two points that occur to me, as the other lecturers take up the subject in detail.

Kelling Place, Holt, Norfolk.
E. S. Prior, Architect.

(1) There are many different sorts of wood used in building, and the nature of the wood must be carefully con-

* After a description of gable verges formed with tiles, allusion was made to the hanging of roofing tiles on two sets of battens, the vertical battens on the boarding being so placed to direct downwards any water which might get under the tiling, and the horizontal battens being nailed over the vertical ones. Tile hanging, for vertical surfaces, pantiles, as excellent for roofing, and other points connected with tiling were then noted. Many of the good uses for tilework were next illustrated: as copings, sills, window heads, arches, tiles for flat roof coverings bedded in cement, and as decoration with bricks and stone, and for shelving, &c. Then some simple forms of fireplaces designed with tiles, bricks, and firebrick lumps were described.

sidered in relation to the design. (2) You must be careful not to imitate the forms suitable to another material, such as mouldings appropriate to stone or carving suitable for same. (3) I specially wish to allude to the use of sham timber framing on the exterior of houses. The demand for this is so persistent on the part of the general public, encouraged, I fear, by the "pretty pretty" type of architect, that both urban and rural district councils have been prevailed upon in many places to modify their by-laws in order to make such use possible, and the Local Government Board have sanctioned such modifications.

I have already alluded to the origin of timber-framed construction, and to it having been in former times the most simple and economical method of building in many districts. It is not so now, at least, in very few, and this fashion for "half timber," as it is called, is a craze which ought to be discouraged. There is no harm in building timber houses; they are economical in cost, and, if properly erected, comfortable to live in, but do them in a straightforward, sensible way. Good weatherboarding on studding seems to me a reasonable use of wood.

Then with regard to the internal lining of walls with wood. Wood forms a delightful lining to a room. It is not, however, always possible to run to the cost of panelling, and a simple method which is generally satisfactory (it is a very old idea) is to line the walls with $\frac{3}{4}$-inch upright boards moulded on each edge and rebated to receive $\frac{1}{2}$-inch plain boards between, the whole nailed to studding or grounding with, say, copper nails, arranged to show as a pattern on the face.

There is a great field for simple and inexpensive ornamentation in a reasonable way to wood surfaces by means of gouging, chiselling, and punching, and also by chamfering edges in patterns such as you sometimes see on old waggons, done simply by means of an adze or knife.

I should like to refer to many other points, such as the way to put on an ordinary butt hinge. There is a right and wrong way, and, judging by the times it is put on wrong, it is evident that many youths are not taught these elementary things. Now if you don't know this, find out at once. I'm not going to tell you. Another thing is the fixing of a mortise lock in a door. For want of a little foresight, when making the door, a great deal of time is often

wasted in getting out the stuff to make the hole through. If a hole were bored down through the rail from top at the distance back the end of the lock would come, the wood could easily be removed in a minute or two. How often is this done? *

I now propose to show you a series of views of a set of

Roker Church, Sunderland.

E. S. Prior and A. Randall Wells, Architects.

buildings which have been designed by architects who feel very strongly the shortcomings of the present state of things,

* On leadwork Mr Schultz had several things to say, laying stress on the value of the material for decorative purposes, and its durability, which should give it a preference over cast iron for rain-water heads, &c. Some interesting examples of good design in leadwork were shown.

In speaking of plasterwork, the lecturer pointed out the importance of slaking lime properly, to avoid the plaster blistering.

The various finishes of surfaces were then referred to, and the value of texture as when finished with a wood float. The quality of sand as it affects the roughness or otherwise of surfaces was also touched on as well as the importance of thorough incorporation of water, and many other points were also alluded to, such as the avoidance of ornament if cost won't allow, the use of simple rounded angles in place of cornices, and so on.

The lecturer then proceeded to trace some of the developments of ornamental plasterwork, and illustrated his remarks by an interesting series of views of examples of different periods. Examples of the old parge work were also shown, and the suggested revival of it discussed.

and who, in a small measure, have attempted, in the method of carrying out their work, to get more nearly in touch with the craftsmen who actually execute it, and with the materials which go towards its practical realisation, using such materials in the best way that the special circumstances of each case will allow, tackling the difficulties as they come, and dealing with them suitably, without being tied to the rigid clauses of a hard and fast contract from which it is usually difficult to vary without a great deal of red tape, and often unnecessary waste of time and increase of cost. To do work in this way it is, of course, necessary to have clients or patrons who sympathise to some extent with the point of view of these men. Clients are often the difficulty, as most people wish to know exactly what they are going to spend beforehand, and want the sum to be definite and binding, not recognising that very few buildings are erected under the present system without large bills of extras which have to be met at the finish. In showing these buildings I should like to say emphatically that they must not be looked upon as representing anything like the best that will be possible under saner conditions, but rather we must consider them as beginnings, as attempts to put a little fresh life into work, but hedged round by limitations caused by the present state of things. They have, however, been thought out by architects who are keen and earnest in their endeavours to get into closer touch with practical things, and, please remember that it is not so long ago since architects were practical constructors and builders. In the seventeenth and eighteenth centuries there are a few names of great architects that stand out prominently, and these were great constructors, as, *e.g.*, Sir C. Wren, but what of the rank and file who controlled all the general building of the time? My impression is that the most of these were practical men also. I have some old books of the eighteenth century which were written as practical workshop guides by men who were not ashamed to call themselves "*architect and carpenter*," and the like. I especially note several by William Pain, from 1769 onwards, who labels himself variously on different title-pages, architect and carpenter; architect and joiner. And were not the famous brothers Adam practical builders, who made their designs, and had trained men to carry them out under their direct employment? Witness the Adelphi, some of the houses in Portland Place, &c. I have in my possession copies of

plans to sixteenth scale for a country house in the South of Scotland dedicated: "Plan referred to in the contract between the Earl of Dumfries and John, Robert, and James Adam, architects," and dated 1754, and the contract exists under which they agreed to execute the whole work, not merely prepare the design.*

And now just a few words in conclusion. I have shown in these last illustrations what it is possible to do reasonably, taking things as we find them, and moving a step or two at a time in the direction of improving the building conditions, and remember that an improvement of this kind, to have any chance of being a permanent one, must come gradually. We have got so far away from directness, there is so much complication, so many wrongs to right, so much that is bad and false to ignore and forget, so many modern contrivances and inventions, at present used unintelligently and wastefully, to bring into line, that it cannot be wondered at if the first attempts to arrive at a better condition of things fall very far short of ultimate aims and aspirations.

If real lasting good is to be accomplished, if we are to have a living, economical, modern, commonsense building tradition once more, the improvement must be gradual and thorough. The craftsman must be properly trained on sensible lines, the direction of the work must be in capable and

* Here Mr Schultz described and illustrated five buildings, which, he said, were typical of genuine effort to get as near as possible to more reasonable conditions of building, and which gave a chance for the various craftsmen employed to express their individuality. He first referred to the small church at Lower Kingswood, near Reigate, built some eighteen years ago from the design of Mr Sidney Barnsley. This was contracted for by a builder in the usual way, but Mr Barnsley, the architect, lived on the spot, and personally superintended the work in every detail, and himself painted the beautiful decoration of the roof. In the chancel is some of the best and most skilfully arranged marble and mosaic in this country. The next building described was Brockhampton Church in Gloucestershire, built in 1903, from the design of Professor Lethaby, which was superintended on the spot by Mr Randall Wells, who directed the work, ordered the materials, selected the workmen, and lived on the spot, actually doing some of the work with his own hands. Then Kempley Church, Gloucestershire, built in 1904, under the direction of Mr Wells, was described (see interior, p. 40). Next, Kelling Place, Holt, Norfolk, a country house, built from the design of Mr E. S. Prior, in 1905, was referred to, which Mr Wells again directed; and, lastly, Roker Church, Sunderland (see pp. 35, 39), carried out from the joint design of Mr Prior and Mr Wells, the latter acting as resident architect.

efficient hands, in the hands of people who are in sympathy with the idea of real, honest craftsmanship, and who have been brought up in touch with actual work, and know, at least generally, the right way of doing it, and the proper use of materials. The client also, or the employer, whatever you like to call him, must be brought to see that good workmanship is worth a great deal more than tawdry pretentiousness, and is worth the getting and worth the paying for. Now, how is all this to come about? There are no doubt many ways. We know what is being attempted on the lines of trying to train craftsmen outside the workshops. Let us hope that the workmen themselves will see to it in time, through their organisations, that these learners are properly trained by practical men, and that they will influence the elected bodies to run these schools in the proper direction.

Let the employer and the workman try and hit on a modern, practicable method of working together for the common good, as they were wont to do in the time of the old guilds, and, what is of infinite importance, let the original conception of the work be thought out on capable and efficient lines. Architects I suppose there must be, at least for some time to come; but let the younger generation be brought up with real knowledge, and in sympathy with the craft ideal. We have a new Board of Architectural Education, composed of many architects, members of universities and the like, but I don't see the names of any builder or craftsman on its list, and yet the crafts have had to suffer through the practical inefficiency of the modern architect! We are told that an approved school or college course—say, two years at the Architectural Association schools—is to count against passing a certain examination. That is no doubt right enough, but let also, say, two years on practical building works count correspondingly. I hope the day may be near when the youth who desires to be an architect shall be sent first to a builder to learn how work is done, and not merely allowed to walk through the shops, or stand on the job with his hands in his pockets, but really be made to try and do things as an apprentice might. He can, at the same time, pursue a certain amount of study in connection with the scientific aspect of construction, getting time allowed him for the purpose, and doing this, of course, also under proper guidance. Afterwards, he might go to a sympathetic architect

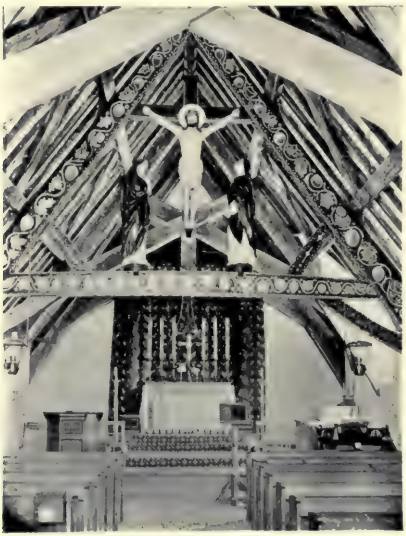
and work with him for a time, learning, on a basis of practical knowledge already acquired, other things that perhaps at present cannot be acquired elsewhere. I had a long talk with a well-known builder in this city of London some time ago on this very subject, and he seemed to agree that some such method of practical training for architects would be quite practicable, and might be arranged. To ensure that the youth would get proper attention, part of the premium at present pocketed by architects for letting youths have the run of their offices for three or four years would be handed to the builder, who might distribute part of it amongst his foremen, so that they, in their turn, would be encouraged to see that the youth really learnt something.

Interior of Roker Church, Sunderland.

Another alternative would be to make young architectural students, as part of their course of training, attend some of the craft schools, and do definite work there on an arranged programme. I have had the pleasure of being conducted recently by Mr H. Phillips Fletcher, the director, through that excellent craft school which is run by the Worshipful Company of Carpenters in conjunction with other City Companies, and I was very much impressed with what is being done there. I understand that the benefits of the school are open to architectural students, but I was unable to find that any are at present on the rolls. Why is this? Is it apathy, or indifference, or is training of this kind actually discouraged by those

responsible for their education? I fear it must be. Until we have education arranged on something like the lines I have indicated, we shall never have real sympathy between the designer and controller of buildings and the workmen who execute them, and we shall never have simple, dignified, straightforward buildings, embodying real structural efficiency, the right use of materials, and the proper composition and proportion of parts.

If these are aims that are worthy of attainment, it is surely well that a serious effort should be made to get a start on the road that may lead to their possible, and, let us hope, speedy realisation. In this effort I am sure that this Worshipful Company of Carpenters will be conspicuous, for, indeed, does it not already realise the nature of the present deplorable condition of things, and has it not initiated this course of lectures for the purpose of seeing what can be done to better it? May its endeavours meet with the success they deserve.



Interior of Kempley Church, Gloucestershire.
A Randall Wells, Architect.

LECTURE IV.

WOODWORK.

BY

E. GUY DAWBER.

The Gatehouse, Little Moreton Hall.

WOODWORK.

THE subject of my lecture—the Historical Growth of Design in Woodwork—is one of especial interest to English craftsmen.

After the admirable addresses by Mr Schultz on "Reason in Building," it may be useful to follow the broad changes that took place throughout the past centuries in the forms and design of woodwork. Some may argue that this partakes too much of mere archæology and antiquarianism, and that it is out of place to-day; but my answer to this is that every craftsman should know something of the rich heritage bequeathed to him by his ancestors, and that a study and analysis of the old methods of building and the use and applications of materials will help him considerably in the solutions of our own problems to-day.

England has always been a timber-using country, and its people, from the earliest times, have been accustomed to its employment in the building of ships, and especially in the use of the bow and arrow. Woodwork in this country was more varied in the purposes to which it was applied than that of any other, but whether this was owing to our insular position, our skill in naval architecture, or the fact that we had the good fortune to possess some of the best of European timber, it is certain that the buildings our ancestors erected are remarkable for the beauty and variety of their woodwork.

If there is one feature above all others which distinguishes the craftsmen of this country, it is the skill they showed in the science and practice of carpentry, and we are indeed fortunate in possessing so many examples of their workmanship.

The subject divides itself into several heads, some of which we can only touch upon. Firstly, the use of woodwork in roofs, spires, houses and barns, ceilings, floors, staircases, doors and windows, &c.; and secondly, the use of woodwork in furniture, screens, seats and stalls, pulpits, presses, chests, and so on.

Of woodwork executed before the twelfth century we have few or no examples, but it probably did not differ much in design and character from that of the tenth and eleventh centuries, at least judging by representations in early illuminated manuscripts.

Up to the sixteenth century the Gothic woodwork and fittings in both churches and houses were all of what we should call an ecclesiastical type—the ordinary style of the day; and for more than three centuries there was absolute connection between wood and stonework, both in design and detail. This is natural enough when we recollect that the masons who built the walls of the church, the house, or the barn, and the carpenters and joiners who made the interior woodwork and furniture were probably natives of the same village, and brought up with the same ideas; and allowing for differences of technique, the simple patterns of the stonemason did very well for the timberwork. Therefore we find the woodwork of the church identical with that of the house, and it was only after the Reformation and the introduction of the Renaissance and classical detail that the ecclesiastical spirit in woodwork died out, and what we associate to day with Domestic work took its place; but although we are dealing with it separately to-night, it must not be forgotten that throughout all periods it formed part of the actual structure. From the time of the Conquest, our English masons were producing a series of wonderful buildings all over the country, many vaulted with stone, culminating in Henry VII.'s Chapel at Westminster, and King's College Chapel at Cambridge; but, at the same time, whether owing to our national pride, or the skill and ability of our carpenters, in all their smaller buildings a preference was shown for timber roofs instead of the more usual stone ones. Possibly in certain districts this might have been due to the difficulty of obtaining good building stone, and they had of necessity to fall back upon the only other local material at hand.

During all this period when the art of masonry was developing to such a wonderful degree, woodwork to a large extent was more or less imitative, if we except the noble series of timber roofs, a large number of which still fortunately remain. These exhibit a fertility of design and soundness of construction truly astonishing, and place the craft of the carpenters of the Middle Ages in the foremost rank.

The simplest and earliest description of roofs doubtless consisted of two rafters pitching against each other. Owing to its tendency to thrust out the walls, this formation soon led to the introduction of the tie-beam, which, in conjunction with the rafters, gives us the simple form of roof, still in use to-day. We find this throughout the Middle Ages in Domestic as well as ecclesiastical work, often with a kingpost in the

Roof of the Great Hall, Hampton Court.

(From Garner and Stratton's *Domestic Architecture in England during the Tudor Period.*)

centre, treated as a shaft with moulded cap and base, and curved braces on either side.

Again, in certain districts we note a remarkable similarity in the design of the roofs. The hammerbeam roofs of the Eastern counties, the trussed raftered roofs of Kent and Sussex, and the waggon-shaped roofs of the West of England, all show the influence of the fashion, set, perhaps, by some strong

personality, or the abundance or limitation of the material at command.

Many of the old tithe barns' roofs were of admirable design, with centre and side aisles—the one at Harmondsworth, in Middlesex, dating from the early fifteenth century, being a particularly fine example.

The well-known roof over Westminster Hall, one of the earliest (1397), is undoubtedly the most magnificent example in this country. This great arch of timber thrown across such a vast span is indeed a noble conception, superbly carried out and constructed.

These timber roofs, the wooden screens to the roods and chapels, the stalls and benches, the doors and panellings all based the motif of their design and decoration on the cusping and tracery of the stone windows, and unhesitatingly copied and adapted from them. We notice various phases of design succeeding each other in exactly the same way as among the contemporary workers in stone, the main difference being that the work in wood is generally thinner, flatter, and more delicate, and it is useful to bear this in mind, because it helps to simplify the earlier part of our subject.

The use of timber again in the framework of buildings was very common ; and, in conjunction with stone and brick, formed in timber-growing districts the chief material of their entire construction. All, however, whether in churches, houses, stables, or barns, were constructed on the same principle, and with the same solidity and general goodness of effect.

You can see a group of these wooden houses in Holborn to-day, and in Kent, Sussex, and Surrey numerous examples still remain. The very beautiful Guildhall at Lavenham, in Suffolk, about the latter half of the sixteenth century, is very characteristic of the Eastern counties, and is an admirable example of mediæval carpentry.

The lavish and almost wasteful use of timber in the construction of the buildings in the West of England is accounted for by the existence of the large forests known to have flourished there in the Middle Ages—at a safe distance from the iron smelting works, which depleted the woodlands of Sussex, and the great shipbuilding yards of the South of England.

Again, a very marked characteristic of Western design, as compared with the houses of the East of England, is the elaboration of ornamental forms in the timber work itself—

The Roof of Westminster Hall.

(From Bond's *Gothic Architecture*. Drawn by F. T. Dollman.)

more apparent the farther north we travel, and culminating in the ingenious devices of Lancashire and Cheshire.

The old carpenters used the timber as it came to hand—crooked or straight, but always with an eye to the picturesque, as well as the useful, and we see this especially in the designs contrived by using the bent and twisted pieces of wood in the curved braces and filling pieces in these half-timber houses of the West of England.

The timber work generally of the West is cruder and somewhat coarser in character than that found in the East of England and the Weald of Kent, and Mr Reginald Blomfield attributes this to the presence of the Flemings, who doubtless taught the English builders some of their admirable skill in craftsmanship.

All through the seventeenth century English carpenters generally followed the traditional details and construction in use for the past two hundred years, and the change gradually took place in the introduction of classic detail, grafted on to the old methods of construction. The timber-fronted house of Sir Paul Pindar, which formerly stood in Bishopsgate Street, and is now in the South Kensington Museum, dates from about the middle of the seventeenth century. The shape of the central bay window had been in use since the early part of the sixteenth century, but the ornament and the carved panels and details generally are a hundred and fifty years later.

Few buildings of any importance were built of timber after the end of the seventeenth century, and up to this time they were doubtless designed, as well as executed, by the same craftsmen.

The treatment of the floors and ceilings of the Middle Ages must not be overlooked, as they formed an integral part of the construction of the buildings. The floors of the rooms were generally formed of large square beams resting on wooden plates, which also formed the cornice of the rooms. These joists and beams were frequently moulded and carved, and the spaces between filled in with plaster or wood. In other cases the undersides of the floor joists were covered with boarding divided by ribs into panels, with bosses at the intersections, carved with foliage, coats of arms, or other ornament. Many of these old ceilings and church roofs bear traces of colouring, and though dimmed by the hand of time, still bear testimony to the splendour of our old buildings when decorated from floor to ceiling with colour.

Old Barn, Harmondsworth, Middlesex.

From a Sketch made in 1884, by E. Guy Dawber.

We can hardly realise to-day what the effect must have been in the coloured pavements, frescoed walls, the stained glass windows, in the rood lofts and screens, the lower panels filled with paintings of the Apostles and Saints—in the sepulchral monuments, and, finally, in the roof itself. As a rule, in the latter the colour was confined to the mouldings and carvings, and in flat roofs the panels were often painted and sprinkled with gold stars on a blue ground.

Doorways, again, were a frequent subject of decoration, and it was generally here, as in the fireplaces, that the craftsman exhibited most of his skill and power of design. The earlier examples consist of ledges to which the vertical boards were nailed—a method of construction in use to-day—very frequently the door was decorated externally, with tracery planted on, in imitation of the stonework of the windows. This was especially the case with the doors in the fifteenth century, when the craft of the smith was so inferior to that of the men who made the wonderful thirteenth century hinges that there was no longer need to leave room for its display. Later, the doors were divided up into small panels, with moulded stiles and rails.

Turning to the inside of dwellings in mediæval days, we find the three chief methods of decorating the walls of rooms were by panelling, by hanging with tapestry, and by painting, the last being an imitation of curtains or tapestry hangings, or else painted with subjects of romance and legend. Probably the earliest wood panelling was of deal imported from Norway —it was generally stained or painted green. A room was made like this at Windsor Castle for Henry III., and there is probably little doubt that till the middle of the seventeenth century much wood and stonework was coloured. In the long gallery at Chastleton Hall, in Oxfordshire, at Hardwick Hall, and at Bolsover Castle, in Derbyshire, the sixteenth century wainscotting on the walls bears traces of colour and gilding, and numerous examples are to be seen in many houses in England.

The development of wood panelling is interesting, and is typical of the evolution of design in this country. In Mr Gotch's "Early Renaissance Architecture in England" this is fully dealt with. Before the sixteenth century it followed the Gothic manner, and was constructed on a substantial scale, the framing being formed of wood uprights and crosspieces—

some 4 inches by 3 inches in section. The uprights were some 18 inches or 2 feet apart, and the cross braces perhaps 4 or 5 feet according to the height of the room. The spaces between were filled with one piece of board let into the surrounding framework, which was sometimes splayed, or moulded.

The panels in Gothic work were ornamented with cusping or tracery, or with paintings. Gradually the heaviness of the framework was reduced and the stiles and rails, though remaining the same width, became only an inch or so in thickness. The panels, again, were made narrower, as it was easier to get boards 10 or 12 inches wide than double that width. Moulding and splaying the margins of the wood framing was long retained—at first the mouldings and splay on the horizontal rails dies out before it reaches the upright stiles, then it is mitred in the solid, and eventually we find it planted on separately until, in later years, we have the large bolection mouldings so characteristic of Wren's work in the eighteenth century. Thus we have the extension of panelling until it covered the whole walls of rooms, and it became universal, and only died out when wall papering came into fashion. Just as at first in the so-called Gothic times we find the upper portions of the panels filled with tracery, so we see afterwards how this developed into the carved panels of Henry VIII.'s and Elizabeth's time, with heads surrounded by ornament—Italian in design and feeling.

Panelling at Norwich.

Then we have the thoroughly English treatment of the linen panels, the decoration being something like a folded napkin laid on the panel. In the panelling from Haddon Hall we notice the small moulding to the panels mitred all round out of the solid—mason's mitres—but this was difficult in that it required great accuracy in setting out and working to get the mitres to fit exactly, though by the end of the

sixteenth century this treatment had entirely superseded the earlier forms of stopped mouldings. Gradually the panels themselves, at first decorated with tracery, linen patterns, or carving, became plainer and simpler, and the ornament was confined to the frieze or upper panels. The monotony of the repetition of rows of panels was broken up by the introduction of pilasters, on which most of the ornament was now lavished. They were either fluted or worked with patterns.

Panelling from Stanford Church, Northants

(From Gotch's *Early Renaissance Architecture in England.*)

All this panelling formed the actual decoration of the rooms themselves, and took the place of tapestry, and each room was a complete design in itself, and the intention was to convey a sense of continuous covering to the walls. Sometimes the panels were filled with semicircular arches, carried on pilasters with caps and bases—a treatment frequently met with in the oak chests of the period. The long gallery at Haddon Hall has these in wide and narrow widths alternately. Occasionally, instead of carving the actual wood itself, the projection was got by cutting the ornament out of another piece of wood, and planting it on the surface, a method met with in Elizabethan and Jacobean work, as also the multiplicity of mitred mouldings, often covering the whole surface of the panels. Indeed, to specify even briefly the various treatments and designs in panelling at this period—the close of the sixteenth century and beginning of the seventeenth—would be impossible in our limited space.

England up to this period still retained the Romantic spirit of the Middle Ages, and was the home of Gothic architecture, just as Italy was the home of Classic architecture. The first indications of the Renaissance or Classical feeling in the design of woodwork in this country dates from the commencement of the sixteenth century, in Henry VIII.'s reign; and the first

Panelling from Haddon Hall.

(From Gotch's *Early Renaissance Architecture in England.*)

important work in decoration by Italian workmen was at Hampton Court Palace, by Wolsey, in 1515, and in the tomb of Henry VII. in Westminster Abbey. The influence of these men was productive of much graceful carving and detail, but the style was too severe for the English craftsmen to handle, and it was really through the medium of the Low Countries that it became grafted in this country later in the century.

Classical architecture was the mainspring of the design—whether it came from Italy direct, or through the coarser channels of Germany and Flanders.

The beautiful panelling now in South Kensington Museum from Exeter clearly shows the evidence of Italian influence—if, indeed, it is not actually imported work; and whether it was the fact that the Italians are said to have favoured the South coast, it is certain that we meet with much refined and delicate work in that part of England.

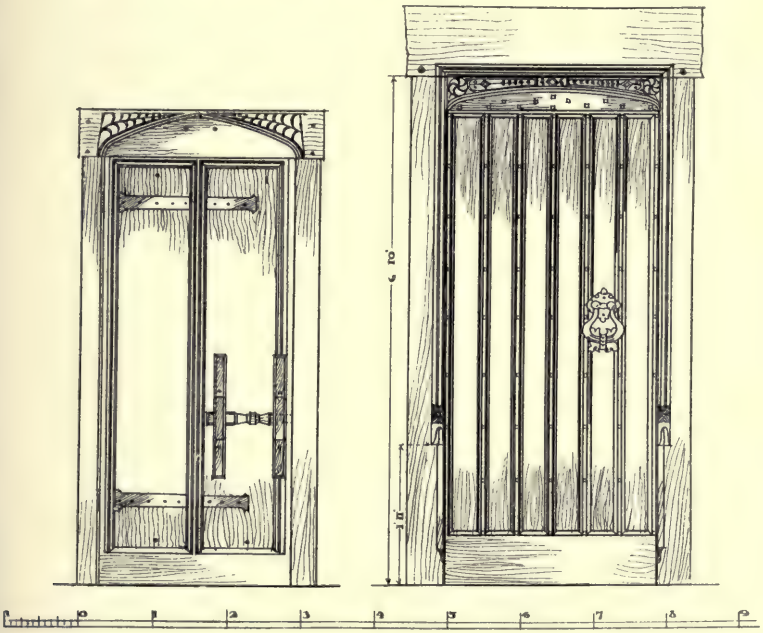
Perhaps the finest example of woodwork in this country, if not in Northern Europe, is the screen in King's College Chapel, Cambridge. It may safely be dated between 1532 and 1536, as the arms and badges of Henry VIII. and Anne Boleyn are on it. It is thoroughly Italian in design, treatment, and detail, and, although we have no record of the makers, it is so obviously foreign in character that there is no doubt on this point. Like the work of the Italians at Hampton Court, and elsewhere, it is an isolated example, and had but small influence on the English craftsmen at the time, and until the end of the sixteenth century the Gothic tradition still lingered on in this country, and for many years it was only in such small objects as tombs, screens, chantries, and the minor details of larger buildings that the new style showed itself.

After the Italian influence died out the Flemings favoured the East coast, and at first we find a mixture of crude classic detail and grotesque ornament, applied without knowledge or much skill, yet at the same time possessing remarkably picturesque effects, and a certain rough originality. Some of the finest specimens of this essentially English type of work are to be found in the halls of the colleges and of our large houses.

As you know, the hall at this period had been for years past the central feature of the house, and the entrance was generally into a space—divided on one side from the hall by a screen, and communicating with the domestic offices on the other. The hall was entirely panelled, and the screen even more richly decorated—its doorways flanked with columns, which carried an entablature, above which was the panelled front of the gallery, surmounted by a series of arches or crowned with the fantastic strapwork peculiar to the time—the spaces between the columns were panelled, and every panel again was filled with carving, coats of arms, or allegorical subjects.

Knole House, in Kent, and Wadham College, at Oxford, are examples of more or less simple designs, but the Hall at Middle Temple and Trinity College, Cambridge, show this treatment in its grandest conception.

The walls above the panelling were hung with tapestry, or with modelled plasterwork, or left plain for the display of arms, or even pictures, which, by this time, were much in fashion.



Two Tudor Doors.

(From Garner and Stratton's *Domestic Architecture in England during the Tudor Period.*)

The roofs, until the general use of plaster ceilings, were still almost Gothic in form and construction, though the detail was Classic in character. The roof of the Great Hall at Hampton Court—built by Henry VIII.—shows this very clearly, for, whilst it is essentially late Gothic in construction,

yet the pendants are composed of Renaissance detail, based on Italian models, and are almost identical with those to the screen at King's College, Cambridge, which was being done at the same time.

The door, doorways, chimney-pieces, and monuments, as in earlier times, were objects of very lavish treatment, and much elaboration was bestowed upon them—the chimney-pieces especially, and whether in wood or stone, were generally treated in the same manner.

The fireplace opening was flanked on either side with

The Guildhall, Lavenham.

columns or pilasters carrying an entablature of architrave, frieze, and cornice—above this was another order of the same kind, and the space between filled with the coats of arms of the owner, or carvings of arabesques. Frequently the upper part was divided by arches and smaller pilasters, freely treated with carving and ornament, but while in keeping with the general panelling of the room, the chimney-piece, as a rule, was always made the chief feature. There are elaborate examples at Cobham, Blickling, the Charterhouse, &c. The one now

in South Kensington Museum, from Bromley-by-Bow, about 1603, is a remarkably fine specimen, and well worth studying as typical of the period.

The commencement of the seventeenth century, or even earlier, saw the last of the rich open roofs and wooden-beamed ceilings of mediæval days, and plaster ones took their place.

The Hall Screen, Wadham College, Oxford.
(From Gotch's *Architecture of the Renaissance in England.*)

For many years these were based upon the flat-boarded ceilings of the late Gothic joiners—with moulded wood ribs and bosses at the intersections. The wood ribs were now replaced by plaster, and as this material, being plastic, allowed freer handling, they gradually developed into ribands and strapwork, spirals and scrolls, and all the multifarious forms we find in the ceilings of old houses. But this, though bound up

with the decorative treatment of the panelled rooms, hardly comes within our scope here.

Gradually as the seventeenth century progressed, the German influence died out, and the wild exuberance of the Elizabethan craftsmen and designers merged into a more refined and dignified style, of better proportion and less lavish display of ornament.

With Inigo Jones came a broader and more scholarly knowledge of Italian architecture and detail, and though based almost entirely on classical influences, yet the woodwork of this period retained a character essentially English and soon lost any traces of foreign influence. The workmanship was of the best, the construction admirable, and the design well suited to its purposes.

It is, in a brief paper, only possible to touch upon the influences that gradually changed the styles of woodwork in England, but, broadly speaking, they followed the contemporary architecture of the time, and, indeed, formed part of it. Towards the close of the seventeenth century Sir Christopher Wren had been for some years rebuilding London after the Great Fire, and he had gradually gathered around him a school of craftsmen and carvers whose influence upon the work of the country was far-reaching. It was indeed an age of constructive joinery and beautiful carving, and whether in oak or in deal, one single style and tradition permeated the whole country. Fortunately, we are particularly rich in examples of this peculiarly English work, and in our city churches, country and town houses, we can examine its construction, and admire the knowledge and skill in its design.

The panelling and woodwork of Inigo Jones and Wren was designed from a different standpoint to that of the preceding centuries, and its arrangement formed part of the architectural scheme of the whole building, not of the individual room only. In Wren's beautiful work at Hampton Court and in many of our city churches, we can see how admirably this was done, and how greatly this class of woodwork had gained in breadth of treatment and quality of design. As instancing the enormous change in the spirit and design of woodwork that had come over the country in the space of some three hundred years, we may compare the choir stalls of one of our mediæval buildings with those of St Paul's Cathedral. Both are superb examples of English craftsmanship, yet one is essen-

Panelling at Belton House, Lincolnshire.

(From Belcher and Macartney's *Later Renaissance Architecture in England.*)

tially Gothic, breathing the very spirit of religious fervour and mysticism; the other equally beautiful, but inspired by classical motives and conceived from an entirely different standpoint. Again, consider the character of the carving of the thirteenth century, full of quaint suggestiveness and realism, and interpreting the human feeling of the moment—on the other hand the carving of Grinling Gibbons and the eighteenth century school equally full of vigour and feeling, but conventional in design and treatment. This type of work continued until the beginning of the nineteenth century, after which, in design and detail, it lost its breadth of treatment and became thin and wiry-looking, although the workmanship and material was still admirable.

With the Victorian era, the last lingering tradition in design died out, and a period of chaos set in. Architecture was perhaps at its lowest ebb, and woodwork followed in its wake. And this brings us back to one thing worth remembering—that throughout all the years when architecture flourished and was a living art, the woodwork was the same, and beautiful work was the result; but as soon as there ceased to be any real tradition in architecture, so at the same moment good design and workmanship in woodwork, as in all the other crafts, died out. The two are inseparable; they always have been and always will be.

Up to the seventeenth century there is no doubt that the bulk of the woodwork was carried out, as well as designed, by the same men. If a roof was required, or a door had to be made, there was a traditional way of doing it—a way which, doubtless, varied in different localities and with the skill of the craftsman employed, but whether the work was in wood, stone, or metal, it all formed part of the structure, and was conceived and executed in harmony with the spirit and feeling which dominated the entire building. And that is one reason for my urging that you should study the noble heritage of beautiful work left us in the old buildings scattered throughout the country, not with any idea of imitation, but to help you to realise this great principle in old craftsmanship.

Do not think because I have dealt with great and noble works that in them only are to be found the best examples of the carpenter's art, for just as frequently you will find admirable instances in the old houses and wayside cottages, but wherever you see them you will notice that their interest and charm

depends upon the balance and relation of each part to the whole building.

In the previous lectures you have seen illustrations of much good work that is being done to-day, and I am therefore not dealing with that side of the matter; but as I firmly believe we have steadily growing up in this country a real living common-sense style of building and architecture, so also will a more improved style in woodwork grow up with it.

LECTURE V.

THE INFLUENCE OF MATERIAL ON DESIGN IN WOODWORK.

BY

F. W. TROUP.

A Living-Room.

Designed by F. W. Troup, Architect.

INFLUENCE OF MATERIALS ON DESIGN IN WOODWORK.

It has been said of the artist that he speaks with his brush. This saying applies even more truly, if that were possible, to the craftsman whose chisel or hammer is his means of expression, almost his language. He expresses his thoughts through his work. The more fluent that his thoughts are, as expressed in his work, the less likely is it that he will be found fluent in words. He may even have his own thoughts, and hold reasons which might explain to others much that to the layman is incomprehensible. But it is more than likely that in his logic and the reasoning about his work he may err, where in his instinct and artistic perception he remains unassailable. It is seldom indeed that, in the case of the true working craftsman, an intimate knowledge of his craft, and at the same time fluency of language and ease of expression to describe and explain it to others, are to be found in the same man. It is with a full belief in these sentiments that I, although an architect, have written the following short paper. The treatment of the subject, therefore, approaching it from my point of view, must be different to some extent from what a craftsman with his practical knowledge and training at the bench would give it. Yet I am in hopes that although different it may still be helpful to the student, and in any case of some value to the young architect.

Let us first consider briefly the case of timber houses—those in our own country in what is called "half-timber" construction, those in Switzerland, Norway, and other northern countries, in pine, and, of course, usually "whole timber," *i.e.*, built of solid logs. Now these two methods of construction are absolutely different, and have naturally developed entirely different "designs" and modes of ornamenting and dealing with the materials decoratively. They show, in fact, about as complete an example as it is possible to select—outside of altogether different materials—of the influence of material on design.

You must please understand the term "design" to cover the whole construction as well as its ornamental treatment—not merely the conscious work of a modern designer, but the natural development—the resultant of several forces, as a physicist would put it, including material, climate, and national idiosyncrasies.

Let us take the Swiss loghouse first. There the builder has abundant timber, and his trees have straight stems. He builds his wall like masonry, with this difference, that his blocks run, perhaps, the full length of the house. Each tree is adzed flat and parallel on the top and bottom sides, and is laid on the one below on a thin bedding of dry moss, which takes the place of mortar. Sometimes the remaining two sides are also cut off, giving a smooth wall of timber inside and out, but often these are left rough. At the corners of the building the logs are notched into one another where they intersect. We need not concern ourselves with doors, windows, and other details at present, but proceed to consider the roof. Here we see at once how the material influences design. Pine wood used for walls in this way is required to last, and in order to prolong its life, it must be protected as much as possible from soaking rains and snow. Hence we have the familiar projecting eaves of the Swiss chalets, with their accompanying brackets, the latter giving endless opportunity for the workman's fancy in these necessary supports, and the former yielding a pleasant and grateful shadow in the heat of summer. We may note in passing that the pitch of the roof is low—the slope is a flat one. No attempt is made to throw off the snow in winter. It keeps the house warm, and is encouraged to remain there till the return of the outside warmth melts it. There are very seldom valleys in the roof, such as we are accustomed to in our steeper roofs; these would cause trouble with the melting snow. Thus the roof is usually one simple span covering a square house, and its ample projection throws all drip well away from the walls. Another point about the low-pitched roof is that it enables the roofing slabs or shingles to be held down and kept in place by large stones, a very characteristic sight in all parts of the country. The Swiss chalet is a good example of the development of a type of house showing clearly its origin from the material of its construction, modified to suit the climate, and resulting in a most beautiful and picturesque whole, which loses nothing from its simple form and severity of outline.

To return now to the French or English half-timber house. Here we have a very different tree, harder wood, more durable, and, generally speaking, not so straight in the log as the pine we have been considering—nor is the supply quite so super-abundant. A house could be built, no doubt, in oak logs just as in pine, but here we find the development or the "design" quite different. Only a sill is laid in that fashion, and on that is raised a framework mortised and tenoned together, perfectly suited to size and natural shapes of timbers from the trunk and limbs of an oak tree. Nothing is wasted. Braces are required to prevent the framework sheering over in its sockets, and these are formed of the curved branches, thus enabling the carpenter to get his tenons formed of end grain, both in the sill it rises

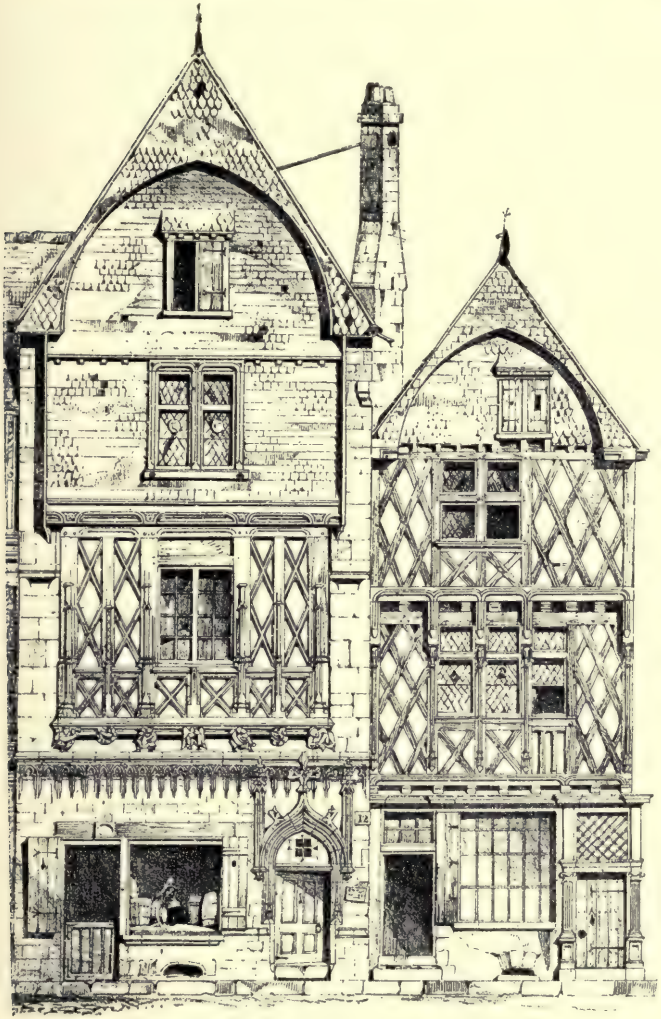
Speke Hall, Lancashire : The Garden Front.

from and in the corner post it supports. Here, as in the Swiss chalet, it is well to protect from the weather both timber and walls, so we frequently meet the projecting upper story, formed by shooting out the floor-joists beyond the walls on which they rest. When, as is sometimes done, the floors are projected on both the end and front of a building, we get a wonderful construction with a diagonal beam, into which both sets of joists are tenoned. The end of this beam carries the corner post of the story over, and is supported by an oak knee, sometimes beautifully carved and moulded, formed by cutting down a tree with a huge root that, inverted, forms a perfect bracket, as sound as if it were made by an engineer of to-day, and riveted up out of steel angles. It is worthy of note in passing that these projecting walls in half-timber houses, when skilfully

done, actually strengthen the joisting, or, in other words, enable a lighter joist to be used than if they had no "tail weight" on their projecting ends. Beyond these main lines of construction, which differ so essentially from those of the pine-built chalets we have just considered, there is, of course, the development of brackets, carvings, mouldings, and ornamental shapes, all varying from the corresponding ornaments and decorations on the soft-wood buildings.

It is not, perhaps, amiss to consider shortly half-timberwork on its own merits. This varies very much in different parts of the country, and in different countries. In France we have fewer curved braces and curvilinear lines generally. Our English oak runs, perhaps, more to large limbs and yields curved timbers more readily than the heavier, straight timber of the French forests. A casual observation of the French trees at the present day seems to bear this out, though we cannot be certain that the stock of oak grown to-day consists of exactly the same tree that was used three or four hundred years ago. Many old roofs in this country are reputed to be of chestnut. Mr Thackeray Turner declares that no chestnuts grew in this country at that date. This statement is borne out by Viollet le Duc, who states that he has examined, for this special reason, many old roofs of mediæval times in various parts of France, and has found them to be of oak in every case, but oak of a nature different in grain and quality to that of modern oak. This difference may have given rise to the assumption that some of our roofs are chestnut.

I have recently had to make some repairs and alterations to a beautiful example of a half-timber house in Norfolk. It was entirely framed of oak on a low brick plinth about 15 inches high and, curiously enough, the timbers showed inside the house, but outside not at all. It had been framed together in its main constructional lines with complete disregard to the chief windows, whose frames were simply clapped on outside in the positions required for the rooms, and for external appearance. The back windows were fitted in to suit the construction, and were correspondingly more charming and appropriate in every way. But everywhere, without exception, where a beam carrying the floors rested on a post in the framework of the walls, that post had been selected with a projecting bracket, probably formed of a root or branch, so

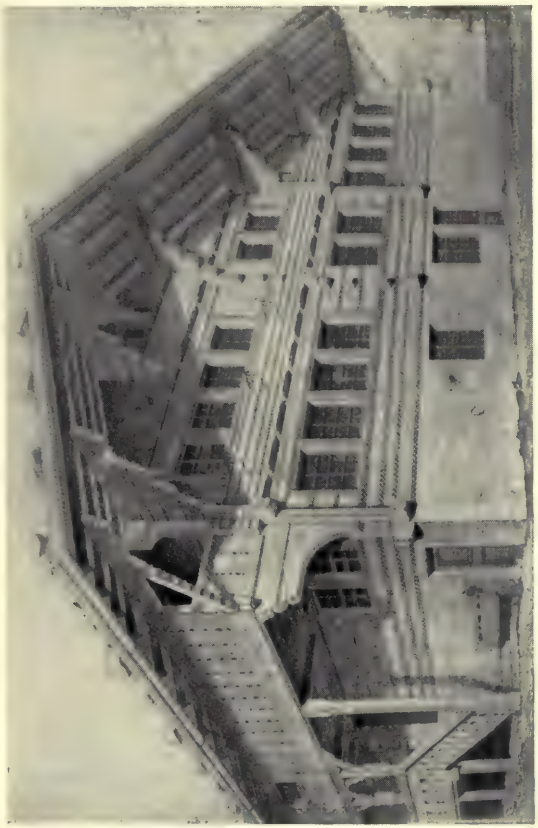


Houses at Le Mans, France.

(From *Sketches on the Continent*, by R. Norman Shaw, R.A.)

as to carry the end of the beam and yet avoid displacing the horizontal timber of the wall framework. The filling-in between the oak timbers was done by means of ash poles about as thick as one's wrist wedged in upright between the horizontal timbers and secured there, and thin laths were woven in to give a key for the clay daub which formed the solid part of the filling-in. This wattle-and-daub varied in different districts, but it was the usual method of filling the framework, and the clay was scratched on the surface for a key, and then sometimes coated with the merest skin of lime plaster, as better able than clay to resist rain and wind. Clay, however, had its own use, and I doubt if anything better can be devised as a filling-in material for timber-framed houses, and I doubt also if the brick filling-in of many old examples is not really a much later alteration—just as half the cottages in Norfolk that appear to be brick are really built of clay-lumps faced afterwards (many quite recently) with $4\frac{1}{2}$ inches of brickwork. The trouble with brick filling-in is the joint between the oak and brick. With new oak a watertight joint is impossible—with clay, in place of brick, the matter is quite different, because as soon as wet enters the joint the clay swells, and shuts it up, and the further it enters the more it swells, until the joint is as tight as a coffer-dam.

This Norfolk house, of which I have been speaking, for some reason—and it appeared to be original too—had had the oak timbers all hacked over outside to form a key for plaster, and the whole surface was plastered over, oak and panels alike, forming a plastered house. The rest of the work, floors and roof and stairs, were splendidly carried out, though it was a house of no great pretensions architecturally. The floors were solid, and were formed in this way: joists 4 inches by $3\frac{1}{2}$ inches were laid flatwise on the main beams and were covered with a layer of reeds about an inch in thickness; on this again was laid wide oak floor-boards nailed to the joists through the reeds. This being done, the underside of the reeds was plastered between the joists giving a good, sound-proof floor and yet barely 3 inches thick. In Leicestershire and other districts where good lime is to be had, many of the old floors were formed altogether of plaster. In place of the floor-boards being laid on the layer of reeds, 2 or 3 inches of well-tempered plaster is spread and thoroughly floated over and brought to a smooth surface. This gets almost as hard as cement concrete, and the under-surface of the reeds is



Timber House in Switzerland.

plastered to form the ceiling as before. Here is a good solid floor three times as sound-proof as ferro-concrete, all construction showing, not more than 4 inches thick, has been done for centuries, and much more sound-proof than steel and concrete. You may think this is a digression into another material, but it is so only partially, for, after all, it is a wooden floor I have been describing, and at worst it shows how impossible it is to classify rigidly into materials in dealing with structure and design. The different materials must meet, and they must get mixed up. They cannot be treated separately, nor is there the least reason why they should.

At this point I wish to make a deliberate digression in regard to this question of classification by materials. Some of you know of, or, at any rate, have seen reference in the papers, to the proposal to disperse the Indian collection at South Kensington Museum and distribute the objects among the general collection there under the headings of Wood, Iron, Pottery, and so forth. A protest has been made in regard to the Indian section, on the ground that all the objects of that great dependency should be kept together. But there are many other countries represented besides India and Burmah in the collection. No words strong enough can be used in condemning what is virtually a prostitution of a superb collection of representative Eastern art to what will soon be regretted as a passing fad or whim to classify the exhibits according to material. The art of a nation is one throughout all materials —each craft reacts upon the other, and is influenced by the other. To compare individual objects from different countries is interesting and useful, but to break up complete collections of all the crafts is short-sighted, and can be justified neither by theories nor for the convenience of lazy students.

I can only give you one or two examples, and, in fact, very few are required, to show you how the material must rule design in all cases. Or, to reverse the proposition, how impossible it is to make a design without knowing your material—the absurdity of designing for one material and then having the design executed in another. There is, however, another influence that affects design almost as powerfully as material, and that is climate. At one time this influence might have been overlooked, because no matter where materials came from, they were used by workmen accustomed to local conditions, and following local traditions.

At the present day not only have we furniture, all sorts of utensils and what not made in one country and sent to another, but we send out workmen to distant countries and even teachers and instructors to show the ignorant natives how things really ought to be made, and how to work according to the holy scripture of the text-book, and so reach salvation by passing an examination.

Not long ago I heard by chance of an interesting trans-

Stonehill Farm, Chiddingly.

(From *Old Cottages and Farmhouses in Kent and Sussex*, by E. Guy Dawber and W. Galsworthy Davie.)

action between the education authorities of London and Cairo. The Director of Technical Schools in Cairo applied to the London County Council for a set of exhibition samples of joinery work, such as is produced annually for various competitions and prizes, showing joints, panels, dovetailing, and so forth, as taught for English work in this country. These were promptly supplied from the Shoreditch school, one of the most excellent and best arranged schools we have in London. Now

what is being done with those models? Are the young Egyptians being asked to copy and do likewise? If so, there is trouble in front of them. If they are simply used as examples of the forms of jointing and framing commonly used by the natives of moist and temperate England, no harm will be done, and possibly some good. But the proper way to teach the young idea in Egypt how to make joints and frame up woodwork fit to stand his own climate is to get some of the native craftsmen to teach them—men who still retain the traditions of the country. He cannot be extinct yet, and the difficulty there, as here, is to get him to impart his knowledge in any other or more efficient way than whacking it into an apprentice for seven years. Nothing can really take the place of this, though for a time we must make shift to deal with the matter in night schools and technical classes.

What now is the chief difference between our treatment of woodwork and that in the warmer and drier climates of the East? It is chiefly that large pieces of wood are to be avoided. Great panels, such as we were accustomed to use in the eighteenth century, are quite out of the question, and even doors are all divided and subdivided in a way quite unnecessary and unusual in temperate countries.

The example of Cairene work which is shown here, might be supplemented by others from India, China, and Japan, each showing variations governed partly by climate and partly by the customs, traditions, and religions of the people, but through all these influences the material itself is never forgotten by the craftsman. The changes and varieties in his work to suit different materials seem as natural and satisfying as the structure and leafage appear in the different trees of the forest.

It is hardly necessary for me to discuss the way in which different woods should be used for doors, panelling, furniture, and the smaller household utensils—not that this branch of the subject is not important, but once the question has been raised it may be left to the student or the young designer to think it out for him or herself. To lay down rules, even if I were capable of doing so, would be futile. Such rules are of little use unless they are broken—which shows that they are useless for the craftsman or the thinking designer, and are, in fact, chiefly an amusement for theorists and dabblers.

Generally speaking, you ought to be able to tell from its

appearance if a well-designed thing is made of soft or hard wood, whether the object has been painted or not. If I go

A Piece of Mosque Furniture at Cairo.

much further in this direction, I shall be trespassing on the subject of the following paper by Mr Romney Green, but the kind of thing I mean is, that the tool suitable for one wood

cannot be used for another without modification of some sort. The draw-knife is a delightful tool for oak, ash, or chestnut, as you may see in hundreds of waggons and carts in the London streets, or, better still, in Covent Garden Market, but you could do nothing with it on ebony; you might as well try and chamfer off the edge of a block of Bath stone with the draw-knife. You can get the same shape and form wrought in ebony and iron-wood by other means, but then the shape is not natural to the material, nor would it have ever been done by the unsophisticated craftsman left to his own traditions, although, none the less, the result may be a sufficiently beautiful model in itself, if you can bring yourself to look at it in that way. This, however, is one of the first pit-falls that has to be avoided by the modern type of what we may call "Paper designer." Unless he has actually practised at the bench, and is familiar with the acknowledged methods of the skilled craftsman, he must devote himself to find out which are the proper tools, and how far they are suitable to the material in hand. Nor must he overlook machinery. If machine tools are legitimately used they form an excellent servant, but there must be no imitation "handwork" about them. A genuine labour-saving machine is a perfect godsend if it be properly used, and, in fact, kept in its proper place, though I confess to more than a sneaking admiration for the craftsman who deliberately undertakes sawing up his planks by hand in order to have a rest from the hard thinking needed for other parts of his work.

When in doubt, the designer cannot do better than refer to the old examples in our museums and unrestored buildings, and, generally speaking, you are safer to go to the earlier examples. But you must discriminate, and very carefully, too. You must not take the form only, and overlook the construction. You must study the construction first, and only copy the form, if it comes naturally from your own requirements. By "construction," you must understand the whole treatment of the material—how it is put together, and, if possible, the tools that have been used; and bear in mind the tools that are available now, or for your work; whether machinery is likely to be used, or whether your work will be executed by craftsmen. If it is possible, and if you are wise, you will take the craftsman into your confidence, and you may be able to learn something of him, or, at the least, you will know what he is

A Hall and Staircase, designed by F. W. Troup, F.R.I.B.A.

equal to, and perhaps find it advisable to modify the design to suit his capabilities, or, better still, leave something for him to modify as the work proceeds.

Most of my remarks, you will gather, are addressed to the young architect or the designer, rather than to the workman or craftsman, but only the form of the sentence need be changed to adapt them for the craftsman. And, indeed, the craftsman has so often to follow designs worked out and laid down for him by the architect, that it is well he should know where the shoe pinches, and be able to help when the chance arises.

To young architects, I would add this word which may be useful to them. They are told—the first paper in this series tells them—to get to the bench and work with their hands. Now it may seem to them impossible and impracticable to give up the time to acquire even a smattering of half the crafts that go to house-building. But you may be sure of this, that if the young architect does but learn the rudiments of one craft or trade, he will find that it gives him an unexpected insight, a kind of instinctive knowledge of the others, that will surprise him and reward him for his labour. Do not therefore be dismayed. If the opportunity offers, or can be seized, to learn a craft, take it without hesitation.

In designing, above all things avoid being clever merely for the sake of effect. Cleverness is not art—more often it is mere licence and a want of restraint. Be certain of this, that your best work is not that part in it which you most admire yourself, and you will be safe ruthlessly to cut out that part from your design. The clever features are like the smart sayings of an author. The latter often ruin a book as the former may ruin a design—they distract and disturb, even if they tickle the fancy. Although they may be admired for the moment, it is more than likely they will live to be laughed at.

If in your designing it comes to such a pass, choose deliberately to be what the critics of the day may call commonplace—in the literal sense *vulgar*—rather than attempt the clever, the smart, the "up-to-date." As a last resort, if you are in doubt, do what you believe to be right, constructively right and true to the nature of your material, and the result will look right, or, at any rate, it will be the best that you are capable of, and no one will require more of you—excepting, of course, always yourself.

I hope I have said enough to show you that the title of the paper is almost a *reductio ad absurdum*. The design is so completely governed by the material that it is really little more than what I have already referred to as the resultant of the two main forces—the inert material with all its possibilities on the one hand, and, on the other, the aggressive tools of the craftsman with his infinite capabilities for good or evil—these two forces, the one passive, the other active, brought together by the craftsman, and guided partly by his knowledge and experience of what is possible and what is best, and partly by his skill and practice in the use of the tools themselves. These produce the main lines, they effect the assembly or bringing together, the building up of the whole. That which remains for fancy and imagination to play with is comparatively unimportant. There is, indeed, a right and a wrong way of letting loose the fancy in carving, painting, or whatever form of gaiety the craftsman allows himself to indulge in, and the right way is always subservient. As soon as indulgence in the fantastic, the *tour-de-force*, or attempt to imitate other materials begin to get the upper hand, so surely does "debased art" become the true and only description of the work. The theatrical, the inessential, the superficial rules, and leads on to the same end that has been described by a great writer as the vile torrent of the Renaissance.

LECTURE VI.

THE INFLUENCE OF TOOLS ON DESIGN.

BY

A. ROMNEY GREEN.

A French Door (Sixteenth Century)

THE INFLUENCE OF TOOLS ON DESIGN.

ALL the articles of wealth which are produced by man fall into one or other of two great classes, which we can call the goods and the tools, or the means of life and the means of production. And of these classes the first may be subdivided again; it consists of those goods such as food and fuel, which are necessarily consumed by use, and of articles such as houses and furniture, arms and personal ornaments or implements, which are not necessarily consumed by use; which may be used and even improved by use for scores or even hundreds of years.

Modern Scandinavian Pot.

Now, there is no reason why a man should not economise if he likes in his tools; beautiful wood-carving has been done by mere savages with sharp pieces of stone or shell; it is only the bad workman, we say, who finds fault with his tools. And there is no reason why he should not economise in all that non-durable wealth which is food for the body

alone; he is often healthier and happier for so doing. But it has always been a prime instinct of the natural man to have his durable goods, which may be food for the soul as well as for the body, together often with some of his tools, as durable and good and beautiful as he can possibly make them, even though he may be so poor that he has to live on rice or porridge. For he is thereby gratifying, not only his desire for the possession and use of beautiful things, which is, perhaps, hardly as strong as his merely physical appetites, but his desire for making them, his productive passion, which is a great deal stronger, and in virtue of which he becomes a creative spirit as well as a material creature. The richly carved canoes of the New Zealand savage, the Crusader's sword with its chased and jewelled hilt and scabbard, the spinning-wheels and household utensils of the Swiss or Norwegian peasant, the public architecture of all great nations in the prime of life—all such works of national art bear witness to the strength of this natural passion. It occurs, perhaps, to the natural man, though it does not often occur to us, that if a table, let us say, can be made to last for two or three hundred years, it makes very little difference from the point of view of economy whether two or three days or two or three months are spent in the production of that table; whereas it makes all the difference to the pleasure and convenience of succeeding generations and to the honour and dignity of their homes whether it is a good and beautiful table or a bad and ugly one; but in any case he spends two or three months, since he cannot spend his time with greater pleasure. No generation, of course, working in this way, can produce all its needs for its own use; but it bequeaths rather more than it inherits; it pays debts to one generation which it contracts with another; for there can be free trade between successive generations as well as between adjacent countries. I know that politics are barred in these lectures, but even if I am not a Protectionist, I admire the nation more than I admire the generation, which wishes to be self-supporting.

But this instinct of the natural man, to make his durable goods as good and durable as he can, is liable to be self-defeated by a certain natural process which I have to try to explain in this lecture.

However long they spend over their tables, the table-makers of a nation—that is to say, all the people who are

engaged, directly or indirectly, in the production of tables—have also to make the tools with which those tables are made. But in the first instance it is the tables they want; they are so intent on making the tables that they spend as little time and trouble on the tools as they possibly can; they are thinking of the end rather than of the means, or of the means of life rather than of the means of production; and the most beautiful tables and other pieces of furniture were made with such simple tools as adzes and handsaws and planes and chisels and gouges before the invention or general use of all

A Norwegian Cradle.

that elaborate apparatus of moulding-planes and turning-lathes, and power-driven saws and spindles with which our much less beautiful tables or other pieces of furniture are produced to-day.

But this earlier work, though so much more beautiful than our own, was still not perfect; and it was originally with the desire to make the work more perfect that the makers began to invent new tools, or to improve their old ones. They found, for instance, that if they used their wood in solid or jointed pieces it was liable to shrink and warp;

they began, therefore, when they had to make a structure of any continuous width, to use the wood in frames and panels; and they invented the plough, which is merely a simple adaptation of the chisel, in order to groove the framework for the reception of these panels. In this case it is the tool that has been influenced by the design, and not the design by the tool. But all tools were not deliberately invented in this way for the sake of making the work more perfect; some were invented almost by accident; and some for the sake merely of making the work more quickly. The turning-lathe, for instance, was suggested probably by the potter's wheel, and it has, of course, an immense influence on design wherever it is freely used. And the moulding-plane was probably suggested by the plough as a means, not of cutting richer or more beautiful mouldings, but of cutting the plainest mouldings accurately with the least possible amount of trouble. And with the general use of the moulding-plane an extraordinary change comes over the nature of the work, which is partly due, no doubt, to other causes—to the Renaissance, for instance, of classic art—but which, as I shall now show, can be almost wholly attributed to the use of this tool, and the growth of the two great motives, the desire for speed, and the desire for accuracy, which it encourages and represents.

On page 89 is a fine old French pulpit of the sixteenth century, an early example of framed and panelled work, in which the plough has, no doubt, been used; but you can see at once that even these plain mouldings, which might have been cut with a moulding-plane, if the framework had been mitred in the modern fashion, could not have been so cut in this instance—they must have been cut with a gouge—because a moulding-plane won't go round a corner in this way. And here you see the advantage of the simpler and less specialised tools; for whilst you are using these tools it is very little more trouble to cut the rich and various mouldings which decorate the vertical ribs of the pulpit than it is to cut the plainer mouldings which, for the sake of contrast, immediately surround the carved panels; these rich mouldings are almost the direct outcome of the tools; it is almost easier to cut certain rich patterns like these with the gouges than other plain patterns, since the latter need more accurate cutting. And of course the fact that the simpler tools were so much more constantly handled in ordinary joiner's work than they are to-day, when many joiners hardly ever have occa-

A Tenth Century Viking Chair.

sion to use such a thing as a gouge at all, meant that every good joiner was already on the way to become a wood-carver, and in most cases probably did so, whereas joinery and wood-carving to-day are totally distinct professions. These panels obviously

were not carved by the sort of artist who regards himself as a superior person—as superior, for instance, to the person who made the pulpit and covered it with these rich mouldings. There is no pretension about them. They have been carved rather as a recreation than a business—they have been carved almost in fun—by the same man or men that put the pulpit together and covered it with these rich mouldings. And not only were they carved by the man who made the pulpit, but they were obviously designed by the man who carved them. It is impossible to imagine that this pulpit was designed in an architect's office; it was designed by the man who made it, and I don't suppose that many working drawings were made even by him. But as I shall presently have reason to point out again, the specialisation of tools generally results also in a specialisation of processes, so that nowadays we have joiners and wood-carvers and professional designers, each of them with their elaborate instruments, which the others are generally unable to use at all.

In the fine old French door (frontispiece), of about the same date as the pulpit, or a little later, the plough has apparently been used, or abused, as a moulding-plane; and it was by this decorative use of the plough, no doubt, that the moulding-plane was first suggested. And this adoption of the moulding-plane, I say, was a great mistake. It was a mistake not merely because the joiner thus lost so much of that practice with the simpler tools which made him a good wood-carver, nor merely because it encouraged him to substitute the plainer for the richer mouldings; it was a mistake also because even the plainer mouldings are much less interesting and beautiful when they are cut with the moulding-plane than when they are cut with the simpler tools which more directly express the strength and the weakness of the craftsman; because, in the latter case, they have that greater individuality, and that delightful play of light and shade on the slightly irregular tool marks, which arises from the more direct operation of the human hand. And it is an especially fatal mistake, because the craftsman comes actually to prefer the greater regularity of the mechanically-cut moulding; he comes to prefer artifice to art; he becomes an artificer and not an artist. Even the carving on this door, delightful though it still is, is more mechanical in design and treatment than it generally is in earlier work. But on this door, at all events, and, as a rule, for some time after the moulding-plane

A French Pulpit (Sixteenth Century).

was in general use, no attempt was made to make these mechanically-cut mouldings continuous by means of mitreing the framework. This involves the use of further special tools and appliances, and a great deal of painstaking, monotonous, unimaginative work, such as the natural man always avoids if he possibly can; and so in much old panelled work, though

the mouldings on the rails may be cut with a moulding-plane, they generally stop dead on the stiles.

But in the seventeenth century panelling opposite, where the plain panels are surrounded with these mechanically-cut and mitred mouldings, art is replaced by artifice altogether, there is no sign at all of the artist, of the natural man. Observe how absolutely without beauty or interest are the attempts at decoration on the pilasters and the central panel. This carving I thought at first was uninteresting, merely because it had been copied in a mechanical way, as it probably was, from an architect's full-sized drawing; but on looking more closely I saw that it was not real carving—that the carving tools had hardly been used at all. It is merely applied fret-work. The same pattern has been cut out in thin pieces of wood, several probably at a time, and these pieces have been glued on to the pilasters, and touched up with the carving tools afterwards; it is artifice, not art; and here you see some of this applied ornament is falling off in obedience to the law that lies and artificers are always exposed—that the truth is always known at last.

In the eighteenth century door (p. 93) there is at all events no humbug; from the structural point of view it is the best door of the lot; there are no bolts or nails in it—there is not necessarily any glue; the mouldings are not planted, but "stuck"; the proportions are good; the door is unobjectionable, and even refined. And in this century a great deal of good work was produced, especially chairs, of this structural excellence and classic refinement; but the work is always best, to my mind, when it is plainest; there is a mechanical hardness about the wood-carving of this period which is just what one would expect of craftsmen who have come by use to prefer the moulding which has been cut with a moulding-plane, to the moulding that has been cut by hand; so that the otherwise beautiful chairs of Chippendale or Sheraton are, as I think, always spoilt by very much of this carving.

But whether or not you think, as I do, that this change in the character of the work—which is illustrated by the extraordinary difference between the later and the earlier doors, or, again, by the very similar difference between the eighteenth century chairs and the beautiful old Scandinavian chair of the tenth century, on page 87—is a change for the worse, there

is no doubt that this change is very largely due to the influence of the more highly developed and specialised tools. Where the more primitive tools have remained in use, as they have done, for instance, till quite lately, amongst the

Oak Panelling, Uxbridge (Seventeenth Century).

Norwegian peasants, there is very little change in the work at all. The furniture produced by these peasants in the eighteenth century, and even quite recently, might almost have been made by the same man who made the beautiful tenth century chair.

Now, this change in the character of the work, this influence of the tools on the design, whether it is for good or ill, becomes still more pronounced with the introduction of our modern power-driven machinery, of which I think some of your previous lecturers have already complained; for the machine tends to eliminate the human element in the work—what scientists would call "the personal equation"—in just the same way as the moulding-plane, and to an even greater degree; and it tends also to eliminate that influence of the material on the design, seen, for instance, in the naturally curved braces and crooked struts of old half-timber work, which was explained by Mr Troup. Just as the hand-cut moulding is more interesting than that which has been cut with a moulding-plane, so the adzed beam following the lines of the tree, and with that play of light on the tool-marks which is almost better than conscious ornament, is infinitely more interesting, both in form and surface, than that which has been machine-sawn and planed, and which has not even the only merit it pretends to, of being really smooth and well finished, since even a really smooth surface can only be got by hand. It is true that most of the mischief had been done before these machines were invented; there is less difference between the work of the twentieth century and that of the eighteenth than there is between that of the eighteenth and that even of the sixteenth century. But what I wish to point out is that during any interval the nature of this change, the effect of this gradual development and specialisation of the tools, is always exactly what might have been expected. The work may sometimes become more perfect in the structural or mechanical sense; but whether or not it becomes less beautiful, it always becomes less interesting, less human and alive. It becomes less interesting partly because the interest is absorbed by the tools—because our time and thought and creative genius are exhausted by these before we come to the finished work, so that our tools and machines, our means of production, are much more truly works of art than our finished products; and partly because these tools and machines are often abused either wantonly or for the sake of economy. The natural man produces beautiful work with the simplest tools, just because he is thinking wholly about the work, rather than about the tools,

about the end rather than the means, about the means of life rather than the means of production; but the civilised man in this case, as in so many others—as in the case of money, for instance—falls into the natural trap of mistaking the means for the end; he invents a new tool by accident, and is as pleased with it as a child with a new toy; because he has got a particular pattern of moulding-plane he covers his work with that kind of inappropriate moulding; because he has a turning-lathe he not only turns table legs and chair legs with it, but he cuts these legs in half and sticks them about on his plain surfaces as applied ornament; and he is as pleased as Punch, because he has invented labour-saving machinery, although the working classes, if they are not unemployed, are as badly overworked as ever, and although the work he turns out with it is worse than anything that was ever produced in the history of the world before.

An Eighteenth Century Door.

But the use of machinery has a further indirect effect upon our modern design, which is in the nature of a reaction; which is seen in the almost morbid desire of the craftsman or designer to be as original as he possibly can. He gets so tired of the monotonous repetitions of the machine, and, rightly or wrongly, he imagines that the public must get so tired of them that he determines, whether he is a so-called craftsman or whether he is himself a designer of this wholesale work, to do something quite new and as different from the last wholesale fashion as he possibly can. And so we

get a series of monotonous repetitions of one lifeless and monstrous type, and then a series of another quite different type, equally monstrous and lifeless; or we go to an art and crafts exhibition, and see a number of individual monstrosities, such as I have myself too often been guilty of: tables that seem to be brandishing their legs in the air, or chairs that remind us of that rare specimen of a cocka-tricycle that was once found at the bottom of a very steep lane in Devonshire. And this great divergence and variety of types or species, and this monotonous similarity of the individual examples of each species are alike unnatural—alike bear witness to the absence amongst us of any living and natural tradition. When there is such a living tradition, you have neither this wide divergence of types nor this exact similarity of individual samples; there will be a class of tables, for instance, of a given period, which are like leaves of the same tree, all nearly, but no two exactly alike; another class of tables, or a class of chairs, like leaves of another tree of the same climate, and so on; and the types of one period grow out of the types of the previous period, just as the natural species of one geological era grow out of those of the era preceding that, and almost as slowly, as I have shown you in the case of Norwegian woodwork.

Now, I do not say that this invention of new tools and machines is necessarily fatal to art, though I believe it will take greater artists to use these greater tools rightly than any we have yet seen. But since the invention of our labour-saving machinery we have made an even worse mistake than that of sacrificing the work to the tools; we have been tempted by the specialisation of the tools, and for the sake of economy, to a quite inhuman subdivision and specialisation of processes; we have sacrificed the man to the work; we not only sacrifice the means of life to the means of production, but we sacrifice life to the means of life; we sacrifice the living men and women, whom we employ like slaves and human machines in our factories, to the cheapness of the shoddy "goods" which even then they can hardly afford to buy, because they are paid, as well as treated, so badly. The arts are well called the humanities, and the products of our factory system—and even our architecture is a product of that system—are necessarily inartistic because the methods of that system are so abomin-

ably inhumane. Our factory hands, our builders' labourers, even our artisans, are treated as "hands," on the assumption that they have neither heads nor hearts, so that we not only spend less time on our work than we did, but we put into it a great deal less thought and character in proportion even to the time we spend. The hands employed on a building job, or by a firm of furniture makers, are employed, just as the machines are employed, in a merely mechanical way; the bodies of all these men are supposed to be animated by the soul of one—of a single architect or designer, who is often, and sometimes necessarily, ignorant of the materials and the tools employed.

A Table designed by A. Romney Green.

And each of these men, remember, has had the mechanical ideal drilled into him so thoroughly that even if an architect insists on having hand-made doors or hand-cut mouldings, the result is generally almost the same as if machinery had been freely used.

And this inhuman system in which we sacrifice the work to the tools, and the men to the work, is justified in the name of economy; and this although our national income per head is five or six times now what it was in the Middle Ages, when we covered the face of the country with Gothic cathedrals and halls and churches, and when we could not build the humblest cottage, nor make the simplest piece of wooden furniture that

was not alive and beautiful; and this, too, though we have thousands of unemployed skilled workers, and thousands of acres of uncultivated land, by the use of which we could add enormously to our national income, and greatly relieve the grinding poverty of our working classes. This inhumanity of our industrial system, and this resulting deterioration of our industrial products, are not due to our poverty as a nation, but to the poverty of our producing classes; to the fact that they have not sufficient control of the system to organise it in their own interests, nor a sufficient share of the goods they produce to have any decisive voice in the quality of these goods. The quality of these goods is mainly decided by the idle consumer, or by consumers, especially by the women-folk of the upper and middle classes, who do not actually produce them. And I was careful to say at the beginning of my lecture that the instinct of the natural man to have his durable goods as good and durable as he can, is due not so much to his desire for the enjoyment of beautiful things as to his passion for making them. In so far as he is merely a consumer, the natural man not unnaturally prefers a good dinner to the most beautiful dining table that was ever made; and our consumers to-day accordingly buy the best dinners and generally the cheapest dinner tables they can out of an income which is often obtained by making the producer pay for the use of those elaborate tools and machines which have captured his market, whilst they are too expensive for him to own himself. Let us appeal to the good taste and philanthropy of these people by all means; the patron has not been useless in the history of art; but the main stimulus to art production must always come, I repeat, from the producer who is powerless to supply it now.

I say, therefore, that the deterioration of our national arts has not been wholly due to the development of our tools; it has been partly due also to causes—of which, as I say, the increasing cost of the tools was one, whilst the introduction of foreign traditions and the enclosure of common lands were others—which gradually deprived the craftsman of that social importance and that control over the use of the tools, and the quality of the work, which he had in the Middle Ages. For the craftsman of the Middle Ages was an important person. Though the national income was so much less per head, his wages were higher in purchasing power than they are

to-day; he was organised into strong craft guilds, of which this Carpenters' Company is a survival; the craft guilds were as important as the merchant guilds; and these guilds together practically composed the townships for which our beautiful art and architecture were produced in the Middle Ages. The quality of their work, that is to say, was partly decided and paid for by the men who did it, and who wanted it done, therefore, not only for the pleasure of having it, but for the pleasure of doing it, which forms, as I say, the stronger motive. But to-day, I am told, our craftsmen no longer belong to their own guilds; they can hardly afford to buy their own furniture; in some places they hardly dare go into their own churches; and their work is, therefore, wholly directed by customers and employers who care very little for its quality so long as the one gets it as cheaply as possible, and the other makes the highest possible profit. For the producer, however anxious he may be to produce good work, cannot work quite for nothing, and even where the consumer pays only a bare subsistence wage, as he does, he generally prefers to pay it for those non-durable goods which he can consume himself rather than for durable works of art, the greater price of which must be paid in behalf of people he will never know.

By this obvious dilemma many would-be revivalists are driven to the theory that it should be possible to produce cheap art. But good work, I repeat, is never cheap; no art is ever cheap to the people by whom it is produced; the apparently cheap art of the Asiatic or of the Italian peasant costs him as much in rice or macaroni as that of an Englishman will ever cost him in beef and beer. Art always represents a victory of the spirit over the flesh, of the creator in man over the creature; and this is never a cheap victory. It represents a sacrifice of the creature which only the creator will make; a sacrifice which will seldom be made by the consumer unless he is a producer also, and which cannot be made by the producer unless he is sufficiently a consumer to have something to sacrifice, as he is not at the present time.

Politics, I know, are altogether barred in these lectures; though the question of the revival of our arts and crafts, as William Morris, the greatest of our modern craftsmen and revivalists, knew, is obviously and almost solely a political question. I wish I could give any useful and yet non-political advice to the architects and craftsmen of this audience as to

what they can do to forward the cause of the crafts at the present time, or, rather, that I could add to the advice of this kind which has been given by your previous lecturers. But I think your other lecturers also know, even if they think it useless to say so, that this is at bottom a political problem ; if they did not know it, I should be the more struck by the pathos of their splendid efforts, the blind leading the blind, to bring about this revival. No one is more passionately anxious than myself for the success of this cause that we have in common, whether or not we agree on the political question. My heart aches when I see the beautiful furniture in our museums, or the delightful old farmhouses and cottages of

A Table designed by A. Romney Green.

Surrey and Sussex, and realise, as I do, how impossible it is even to imitate that work to-day. And I know that this Carpenters' Company is as anxious as I am for this art revival, as is sufficiently proved by its generosity and energy in organising this series of lectures. But I am sure that my friend the Master and this Company will agree with me when I say that the crafts will never again flourish in this country until the actual craftsmen are once more sufficiently important people to be their own architects and designers, and to belong to their own craft guilds. Then, I believe, they will use their wonderful tools and machines as naturally as our forefathers used theirs, and with even more splendid effect. But if any craftsman wishes to do good work in the meanwhile, and has to live by

the sale of that work in the open market independently of wealthy patrons, or of a private income, I can only tell him that he must be prepared to go to the extreme limit of those sacrifices which are always to some extent necessary in the cause of art. Like St Francis, he, and his family too, if he has one, must embrace poverty as a bride. He must economise in everything but his work, and even then he may often economise with advantage in his tools, for the reasons that I have explained to-night.

LECTURES VII. AND VIII.

IDEAS IN THINGS

BY

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IDEAS IN THINGS.

I.

I AM not here to feel your pulses, diagnose your afflictions, and prescribe any wonderful pill; I have no patent medicine. I believe you are all in excellent health—not bodily health, perhaps, but spiritual health. Yes, you would not be here unless you wanted to improve something, or do some good to somebody, any more than I should, and that is a healthy sign. And, before we part, let us hope we shall all feel that our good desire will ultimately bear good fruit. Let us always carry in our minds the firm conviction that no honest effort is without good fruit. Our accomplishment may be frustrated, but our good intention is always recorded in some way, not necessarily apparent to the world or to ourselves in the way we expect. Neither goodness nor truth can perish. Though we may not see the fruits of our labour, let us believe nothing good is ever wholly lost.

This age we live in is intensely material; it has witnessed a mighty development in material things. The steam engine and electricity have transformed the world; our minds have been engrossed by material ideas to such an extent that we have scarcely devoted that attention to the spiritual side of our natures which that side deserves.

As we are met here to help each other to produce better work, and, as you will hear from others, as you have already heard, much useful information on the various crafts of a more or less technical and material nature, it is for us to kindle the thought and feeling that shall form the motive power by which material forces are to be turned to good account.

It is lamentable when men's minds are so absorbed by material conditions that they lose all sensibility to the higher forms of usefulness and happiness. Materialism alone is a demon of unrighteousness; one of its commonest effects is to belittle the faculty of reason, and allow our wills to follow

the dictates of our emotions. We are content to be pleased with anything, without asking ourselves why. Things said to be charming are often accepted without question.

I have heard artists openly affirm that art has nothing to do with reason. They say they are led in a mysterious way in their work, and never reason about it, although they talk reasonably enough about material qualities.

You can picture a world divorced from reason. Where, for instance, would the emotion of love lead us without the guiding hand of reason? And that surely is our noblest emotion.

Our nature has always been twofold, viz., material and spiritual. And it is only common-sense to recognise this dual quality. We *must* distinguish between those things which help to develop the body and those which lead to the purification and advancement of the character.

When we speak of spiritual qualities we mean all mental and emotional conditions not necessarily of a religious nature. In these days of conflicting creeds it is rather desirable to foster spiritual activity outside the sphere of theology. Men of every class and every shade of religious belief recognise the difference between thoughts and feelings that affect their hearts and characters, and thoughts and feelings which only affect their bodies.

Not for one moment would I belittle the importance of all material and bodily conditions. But in the cause of art and the higher qualities of man, we must pay more regard to the spirit and less to the flesh, without which spiritual basis no art is worth having at all. Personally, I feel that religion is essential to the healthy development of our spiritual nature. But I must not dwell on that side of the picture here.

The presence of so much ugliness in our life to-day is largely due to our materialistic habit of mind. We love ease far more than beauty, utility far more than inspiration; and consequently "ideas in things" are not readily recognised. Before going further, it is necessary to draw a clear distinction in our minds between associated ideas and intrinsic ideas. For instance, some have the idea that money is the root of all evil. This is an associated idea, due, we think, to false reasoning. It is by the bad way in which money is used that evil is caused. But that is by the way. There is all the difference between such association and that inward intensity of feeling that produces an object, that will express spiritual

qualities understood by those who see the object even for generations after the author is dead. Money can only be spoken of in this sense when the actual coins are considered as representing dignity, grace, refinement, reverence, &c. These ideas are intrinsic, not associated. And we shall often find the two kinds of ideas intermingled and overlapping, making it difficult to discern which is most potent. But the intrinsic are always more stable than the associated ideas. The latter are subject to change, but the former can never be.

All art is the expression or manifestation of thought and

Marske Hall, Yorkshire.

feeling; therefore a technical knowledge of any craft by itself is but a language with which to express thought and feeling. And such qualities of mind as accuracy, order, neatness, precision, frankness, love of truth, and, above all, reverence, are some of the qualities of mind we call spiritual, because they minister to our characters far more than to our bodily comfort. We may make doors and windows, chairs and tables with mechanical exactness, and be paid in coin in exchange, but neither we nor those who pay for it will gain any spiritual benefit from our labour unless we have put our heart and minds into our work, anxiously seeking to impart some good

thought and healthy feeling. Whether or not the workman be seeking to gain praise for himself or express praise of lovely qualities, will make all the difference to his influence through his productions. It will be vain and frivolous, or dignified, simple, and restrained. A thousand subtle feelings may be suggested by it according to the earnestness and purity of the man. It is base materialism to shut our eyes to the spiritual character given by man to matter.

Materialism has given rise to a thirst for artificial excitement. For in proportion to man's loss of interest in spiritual ideas, and in the manifestation of moral qualities, he loses enjoyment in his work, and cries out for amusement by itself. A workman to whom his work is a feast of reason and a flow of soul, does not want to waste much time on watching football matches; he is not hungry for the excitement of gambling; his joy is more constant and less spasmodic. I believe the old carpenters derived more pleasure from their work than we derive from ours, because they read less and thought more; putting more thought into their work, more thought was got out of it. Their ideas were fostered and stimulated by the thoughts and feelings in the things around them. The capital or door knocker was eloquent in the appeal to their fancy. But now the idea that a chair or table can be made to express thought and feeling seems to our workmen quite ridiculous. Their thoughts are directed to collectivists' visions, votes, and public control of property; mundane considerations fill their horizon.

Differences in the material condition of men have existed ever since the world began, and I am not here to say if it is right or wrong that it should be so. But let us make quite sure that, however unequal the material condition of men, we all respond to the same virtues—love, reverence, humility, self-sacrifice, simplicity, truthfulness all are understood, and loved by all. Thus we have a bond of union: whatever the differences may be in development, the spiritual qualities are to all alike a perpetual aim. Once let it be recognised that the spiritual verities are of primary importance, and that we can help on our own as well as our neighbours' growth in virtue by trying to put thought and feeling into our work, we shall then find an added joy in labour far more precious than any material reward. The delight of expressing thoughts and feelings which arouse interest and pleasure in others, is possible to every one of us. We are all endowed with the power to impart thought

and feeling. All we need to acquire is the power to discriminate between good and noble thought and feeling and the baser sort. What have our schools done in this direction? What are they now doing? Many of them are teaching us that in certain past ages very beautiful work was done, and that such beauty is not possible to this dark age. We are all miserable sinners, so they say in effect; we must go on our hands and knees and measure up and draw and learn like parrots, to imitate with technical excellence what the ancient and good have showed us. My friends, this is false teaching. There is as much capacity for goodness to-day as there ever was in any age. Men can turn out work as perfect in all material qualities as the world has yet seen.

The difference between what is done now and what was done in years gone by, is due to spiritual qualities, not to material qualities. In the past men read and talked less, but thought and felt more. They had more pleasure in work and spent less time in games. They were, in fact, more spiritual and less material in their attitude of mind.

The human quality in familiar objects has in many cases been driven out by the machine. Nevertheless, the machine has come to liberate men's minds for more intellectual work than was provided for them by the sawpit, though still there is much work in the world which requires little or no intelligence. Let us remember the sense of duty is yet left to us; and thousands will bear witness to the fact that the sense of duty has often transformed irksome tasks into pleasant labours. But, besides the comforting thought that the unpleasant labour is a duty, we shall find that many dull occupations may be made enjoyable by instilling spiritual qualities into them. Conscientiousness and a love of truth and hatred of all forms of deception will help us to make the hidden parts of our work as good as those that are seen. I do not think there is one here present who would not enjoy making our articles of furniture of one quality throughout, instead of oak in front and deal behind. And our patrons, if they, too, felt the same, would be glad to pay for the absence of sham. If we would frankly acknowledge the structural necessity of nailing down our floor-boards, we should not strain our ingenuity in devising methods of secret nailing. We are far too keen on mechanical perfection. That love of smooth, polished surfaces is very materialistic; it can be produced without brains, and in most cases can only be

produced by the elimination of all human thought and feeling. It is delightful to see skill of hand and eye. All evidence of painstaking is a joy to behold. But in our materialism we have run after the perfection of the machine and preferred it to the perfection of the human heart. The modern builder will have the arrises of his stones drafted and made mechanically square and true, so that the mason can set them with plumb-rule and little or no thought, preferring that mechanical exactness to the work of the painstaking human eye. And, alas! many a mason prefers to use a tool rather than have to think. Thus is materialism encouraged on every hand.

You have all observed the soft, yet massive, effect in old buildings, when the angles were put up by human eye, and compared them with the hard, unsympathetic, mechanical effect of the modern drafted angle.

I would not have you go back to all methods of hand labour and neglect the aid of the machine. All we need is to recognise its material value, and its spiritual imperfection, and put into all our hand-work that thought and feeling which is the breath of life. The worker and the worked-for all alike must co-operate to instil new life into all they make by dwelling on the moral and spiritual significance of things.

We are all keen enough if our local sanitation is at fault. We cry out loudly if a hospital settles down outside our door. Anything that endangers our body is at once attended to. But the hideousness of our lamp-posts, the poison to our souls' eyesight through the degradation of vulgar advertisements, is allowed to go on unhindered. We cannot hope to stem the torrent of hideousness all at once. Sensitiveness to beauty requires ages of cultivation, and can only spring from a deep and sincere love of truthfulness. To be true to your material, true to your conditions, true to your highest instincts, is the surest and only way to true art. So our first duty must be to sweep away all shams, and give up pretending to be Greeks or Romans in our architecture. If we have no noble ideas, let us hide our heads in the sand until we get some. But for pity's sake do not suppose that we are noble because we have learned how to copy the expressions of the noble men of old.

All the beautiful human work that has been bequeathed to us by the ages was the outcome of sincere and honest thought and feeling. And it is still those spiritual qualities that keep it alive in our affections to-day. Let us then see to it that our

work is palpitating with sincere and noble thought and feeling, whatever our work may be. The frame of mind of the joiner in mitreing his architraves is destined to have its effect, whether he be followed by the painter or not. Faithfulness in little things builds up the strong character and makes work enjoyable to the worker, and lays the foundation of that sense of beauty which we all need.

Rochester Castle.

Reverence for nature is a fruitful source of beauty. Suppose the woman who wanted a bonnet were to recognise that her head was made by superhuman power, and out of reverence she ought to regard her bonnet as of secondary importance, her head being only lent to her, while her bonnet is her own; would she not come to think of the bonnet as a head *covering*, as something to protect her head, and so by considering fitness

arrive at a reverend complement to nature? There was a striking article in the *Times* the other day, in which the writer advocated an attention to vocation in matters of dress. If people would dress more to fit them for their several vocations and occupations, the modern costume would undoubtedly be more interesting and more fit, and, therefore, more beautiful. This is a subject worthy of more thought and attention than we can give it now. But it is only one of the many matters by which may be cultivated by both sexes that sincerity, and simplicity, and directness of purpose, which is the essence of all good work in whatever material we may be engaged with. This sincerity, simplicity, and directness we feel to be good, because fitness is a universal law of nature, and these qualities tend towards it, and it is also essential to beauty. The theory of evolution has disclosed the fact that all organisms are for ever moving in the direction of greater fitness and harmony of condition. It is as essential to fitness that objects should minister to our spiritual growth, as that they should minister to our bodily comfort; and it is an important fact to which you will all assent, that only to minds set on goodness is the manifestation of beauty possible. That is to say, if our work is to be fit and beautiful, it must express some good thought or healthy emotion. Our homes must arouse the emotions of peace and goodwill.

Whatever we make, be it only a chair, can record our honest endeavour to serve a useful purpose, and stimulate kind feeling. Ruskin said, "In old times men used their powers of painting to show the objects of faith; in later times they used the objects of faith that they might show their powers of painting"; and this exhibition of human skill has gradually usurped the place in man's affections that rightfully belongs to thought and feeling of a less material kind.

We make a great mistake in devoting all our attention to men's work. Better watch the ways of Providence than copy the actions of men.

I am reminded of the mad hatter, when he put butter into his watch with a bread-knife. How now our students think to ease their labours with the polish of Greece and crumbs of knowledge from Italy! When asked to design anything, we immediately inquire how some one else did it; having no reverence for our contemporaries, we look to the dead and buried and find our museums crowded with lovely examples. Every inducement is held out to us to use the wits of others

rather than our own. We even prefer to carpet our rooms with Eastern hieroglyphics, which we do not understand, rather than with patterns made at home. We imitate any foreigner rather than take the trouble to think for ourselves. Now, how does nature go to work? Everywhere we find her making the best possible use of immediate conditions, evolving beauty out of fitness and wisdom out of regard for requirements, materials and conditions all in exquisite harmony with established law. If we would go humbly to nature more, we should have a juster reverence for man's work. We should not be content to copy his successes and his failures, without exercising our own faculties. It is much more healthy for a student to be told the conditions and requirements necessary to provide any given object of use than to set him to copy the best example of the same in existence. The process of thought in the classification of requirements and conditions is immensely valuable. It stimulates the faculties and warms the heart, and encourages the feeling that there is always room for improvement. But the general method of procedure is to fix on existing human production as more or less perfect and final, and at any rate superior to our own, and then copy, copy, copy, without having a full knowledge of all the circumstances and conditions that gave rise to the object of our admiration. The student's faculties are in this way cramped and petrified.

Old Traceried Panel on Wood.

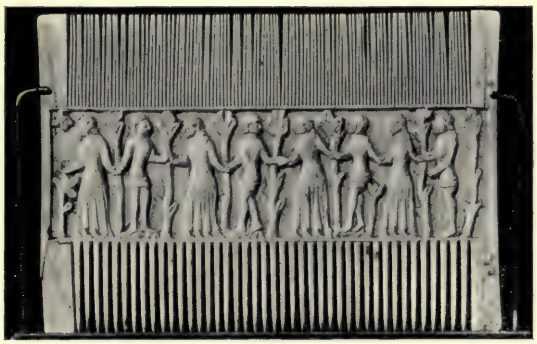
What we need is more reverent study of nature and nature's ways. The effect on the human mind of watching and tracing out the operations of nature is of untold value. It humbles a man and softens his judgments of his brother; it quickens all that is best in our characters. The more we look into nature, the more we feel the spiritual forces behind it all. It is this perpetual attention to the spirit in its purest

manifestation that will improve our work, and so increase our happiness and usefulness. Ruskin says, "All great art is the work of the whole living creature, body and soul, and chiefly of the soul." The smallest article of daily life may be greatly enhanced in value by the spirit of the workman in its creation. It is quite easy to see when our articles of daily use are made by loving hands and thoughtful heads, and when they are made by human drudges working for wage alone. To impart this human spirit to anything, we must not imitate blindly; no feeling can be imparted until it has been truly felt by the workmen. This fact concerns us all, for we need to look for that spiritual feeling in objects which we wish to impart to our own productions. If I cannot be graceful and comely, I can at least have a graceful and comely umbrella, and in that way help to keep up my interest in those qualities.

It is a material necessity that we should specialise in various vocations. Life is so short. But we must not confound this specialising in various crafts and professions with the development of our spiritual nature. One man may work with a chisel and another with a brush, but both have the same human virtues to deal with. Both have the same spiritual qualities to think and feel about. Beauty in its myriad forms is not the prerogative of the painter. The expression of beautiful thought and feeling is the function of every human creature and, for aught we know, every animal. It is a most mischievous distinction that has designated some men and women as artists, and led others to think that the expression of beautiful thought and feeling in things material is a matter they need not care or think about, or are incapable of understanding. It is universality of artistic expression and sympathy we need to encourage and foster, and which the attention to our spiritual nature will do more to stimulate than anything else. The added charm of mingling material and non-material, of living and working in the conscious light of spiritual ideas and feeling, must enrich the dullest labour. It surely is much more invigorating to believe that we are working to express universal ideas, than that our labours are purely material and perishable, appealing only to the lower part of man's nature. If also the spiritual quality is uppermost in our minds, we shall feel less the relative importance of our several occupations. We shall find spiritual giants in small, secluded places. A man's importance in the world will not

be measured so much by his social position as by his earnestness. We cannot all be high priests, but we can all do much of the work of archbishops, if we like. At any rate, we must recognise that technical skill and material advantages carry us only a very little way in this world, and no way at all in the next. It is our spiritual fire that forces us onwards and upwards.

Let us now see how far these visionary ideas can be applied to everyday, commonplace things. We pride ourselves on being such a hard-headed, practical nation. "Utterly material" would be a more accurate description of us. It is quite common for people to remark, "Oh, do look at that,



An Old Carved Comb.

did you ever see anything more hideous in your life?" but you never hear any one say, "Oh, do go and inhale that foul odour, it is the worst you ever met with." Why this difference? Surely it is because we all recognise that a bad smell is injurious to health of body; and in the former case we do not remember that ugliness is injurious to the health of our soul. Indeed, I fear some of you may not even admit my assumption. I am nevertheless convinced that if we paid more regard to spiritual matters, we should feel that all ugliness was to be avoided as a form of sin, and that it was as harmful to our characters as sewer gas is to our bodies. We should never look twice at what we believe to be ugly, any more than we would read of murders and divorce. If, then, we are to avoid

all ugliness, we must be very simple in our homes and very careful not to harbour things that are intended to look better than they are. This striving for simplicity, if sincere, will enable us to distinguish between sensuous forms and colours and those things which stimulate the thought as well as the feeling of the beholder. It is very tempting placidly to enjoy mere sensuous effects and forget the much more valuable qualities that charm the mind as well as the heart. A great deal we collect around us is of that sensuous kind that causes purely emotional and vague feelings of pleasure, but leaves us no better than we were before. In fact, lavish ornament is like a drug, the dose requires increasing as it loses its effect. But the moment you couple thought with sensuous feeling and healthy emotions, you feed the character and strengthen spiritual life.

We have, then, to bear this principle in mind in furnishing our homes. Let the simple articles of use show an honest endeavour to fulfil the practical purpose of their existence, and a reverent regard for the materials of which they are composed —that is, we must not use wood as if it were wrought iron, but suit our design to the natural character of the material. And let every bit of ornament speak to us of bright and healthy thought.

Do not string meaningless forms together merely for the purpose of sensuous pleasure. Better derive pleasure from the observation of fitness and proportion, because it is a nobler form of enjoyment—nobler, simply because it appeals to the whole man and not to the one faculty of sensation only.

We may learn something from the tree of the spirit of domestic happiness. We find the branches as they spring, radiating in rhythmic flow from the parent trunk, all harmoniously, not one on the top of the other in confused angularity; each bough and each twig grows a little to one side of those above and below, so that all can enjoy the sun and shower. This surely is brotherly love. Can we not get this feeling in our rooms by arranging our furniture and ornaments so that each has its due share, nothing being crowded, and every article helping to make its neighbour's virtue more, not less, pronounced. The essence of good proportion is brotherly love, making one line, surface, or space helpful to the full expression of another, in harmonious contrast, not angry rivalry.

The quickest thing in nature is a flash of lightning; it is made up of angles. So we find to give the effect of movement we require angularity of one kind or another. We call people crooked or cranky when they lack sweet reasonableness, and they show a want of stability that is disturbing. A stormy sea or sky is angular and cut up—the pained soul is said to be "cut up."

On the other hand, nature generally expresses the sweetest calm and repose. At sunset we see the horizontal lines as if all nature were reclining and preparing for rest, dim light drawing a veil over disturbing detail. Horizontalism thus suggests repose; it is the greatest contrast to angularity. These two opposite forms of angularity and horizontalism are the plainest statement of the opposite states of mind of disturbance and peace. Now when a friend enters your room and seems in doubt where to be seated, if he shows any signs of restlessness, be you very sure your room is at fault. But if he feels a half-conscious sense of repose, and is inclined to be peaceful, it will be in some measure because your room is not crowded with conflicting forms, colours, and textures.

The disturbance of the senses is often very subtle. You go to call on a friend; you leave the York stone pavement and stand on mosaic or tiles, then on cocoanut mat, then, possibly, on polished wood, and then on pile carpet; all varying sensations in rapid succession, which are more or less destructive of repose according to the sensitiveness of the visitor. We do not need to be told that peace of mind is a desirable condition; therefore very little device we can bring to help us to that peace of mind which passes all understanding is good. This illustration is trivial enough, but it establishes a principle that in material things we can foster mental conditions by the aid of nature. How then can we get help from nature in the matter of colour? Grief and joy are expressed by our colours more than any other emotions. We find colours that stimulate and colours that soothe. We can produce the sensation of a drunken brawl by our combination of various coloured articles. Most of our drawing-rooms are of that type. Your eye is pitched from cushion to cushion like a hockey ball—the velvets, plushes, satins, silks, wools, cottons, marbles, metals, woods—it makes one's brain reel to mention the multitude—all trying to

monopolise attention; not to speak of the so-called ornaments. Now what do we find nature doing? She furnishes with an abundance of the most soothing colour, viz., green; she uses her red most sparingly. In the spring she feasts us with delicate greens, greys, blues, purples, and, later on, yellow, gradually warming and strengthening her colour as the summer sun increases its power over the eye; and as our eyes and our senses are tiring, come the more stimulating oranges and browns, the deep, emphatic autumn colour. Then it is you hear people enthusiastic about ampelopsis and autumn tints generally. The more sensitive to colour have been enthusiastic all through the year. It takes a red flag to rouse John Bull.

One point we must all observe, whether we are very sensitive to colour or not. That is, that nature never allows her colours to quarrel. Her purple trees, with their gossamer of delicate spring green, dwell lovingly with the blue carpet of hyacinths. Harmony is everywhere. Nowhere without its dominating tint and jewel-like spots and patches of more brilliant colour. But the most brilliant colours are always in relatively small quantities. Nature never painted long lanes of brick-red. If you give her a chance she will bury your red with gold moss. It is the relative quantities of colour that make for harmony. Colours themselves are innocent enough. Like words, they need combining to demonstrate their worth. When nature is kindly treated and allowed healthy development, she shows her joy by purity of colour. Stir up the sediment of your pool and the mirror will no longer reflect truly, and so the idea of corruption is inevitably associated with impure colour.

One of the chief reasons why we should evolve our creations out of a due consideration of conditions and requirements, instead of imitating tradition or well-beloved examples, is that our conditions and requirements are always changing; new methods and new materials are constantly being evolved, and men's habits and tastes are for ever developing. What suited people of the last century is not quite in tune with the feelings and needs of our own time. If fitness is to be our law, as it is nature's law, we must not pin our conceptions to pre-existing forms too rigidly.

Any revivalism must involve the sacrifice of fitness. We should be ready to part with old traditions when we have found other methods more fit. We have certain characteristics

peculiar to our own country and nation, such as climate, which we ought always reverently to acknowledge and rejoice in. Were we more spiritual, these conditions would be more respected and regarded as superhuman. They would help us, rather than hinder us, to a fuller expression of the thoughts and feelings common to us all, and which, after all, are the

Rheims Cathedral.

Lent by Mr A. S. Dixon.

This illustration shows that the two figures to the left and that to the extreme right fit their position far more perfectly than the two middle figures, which have a more refined and delicate treatment, with less rigid lines, but are less suited to the spirit of Gothic art.

main source of our real happiness and progress. It is by keeping alive and active these living faculties and continually polishing them up by sympathy and controversy, that we shall develop character and so beautify the world.

One of the commonest and yet the most precious feelings we all have is that of generosity. We admire the bounty of the wealthy, but how much more do we delight in the gener-

osity of the poor. How different are the mediums of generous feeling. Ruskin told us the greatest charity was the giving of praise. Certainly it is more tonic to the praiseworthy than much fine gold. But it is the effect of generosity on the giver to which we wish now to draw attention, for in the feeling of generosity we have a very powerful influence for good which affects our works in a marvellous manner. Unfortunately, it is more often a quality we look for in others than in ourselves. But it is one that affects every craft and every production. The feeling that we must bestow some benefit, give to others something we believe to be good. If this feeling were more cultivated it would tend to greater enjoyment of life to all of us. This spiritual quality is stifled by over-attention to material gain. The carpenter in making a door for us will think he has served us better by adding an eighth of an inch of thickness more than he bargained for than if he strove to think and feel and show a keen desire to express dignified and simple proportion, faithful care in the hidden parts, and an earnestness to serve well and assist the efforts of brother workmen. That spiritual frame of mind is none the less real because we cannot gauge it with a foot rule. How often, indeed, metaphorically speaking, we measure out our wood and labour and balance it with the payment we are to receive; but in nowise does the bestowal of anything come into our reckoning—and therein lurks the great question of life. Wood and labour we can measure and weigh; but if in addition to material and labour we add thought and feeling, we are bestowing just that spiritual quality which will make our wood and labour a joy to producer and possessor alike. Is not this thought and feeling, then, the very soul of material creations, and the only enduring quality about them? Is it not because we believe the pursuit of beauty tends to improve character that we are so keen about the arts? Or perhaps we are ordained to derive pleasure from beauty because it is elevating to the soul. So we are led by natural instincts to seek that which will improve our condition, both material and spiritual. But, although so precious, it cannot take the place of the material qualities or be made manifest without matter; thus we have still to be careful to give the material qualities we are paid for; and in our care we are bestowing a certain amount of that very thought and feeling we regard as essential. We thus show an anxiety to be just and to avoid taking more than our due. So by the very nature of

things we cannot escape from spiritual considerations. It rests with us to stimulate and enrich this quality by the addition of generous feeling, and in so doing add the thought and feeling that will make our work something more than the mere fulfilment of material requirements. The door, then, may be a joy and even an inspiration; it may express welcome, grace, dignity, simplicity, and arouse interest; it may soothe and solemnify or irritate and vex you. You pass through it with feelings of pleasure or of pain, or with no feeling at all, But the point for us to consider is, what has the maker of it gained and given by his labour? Has he polished up his own and our thought and feeling? If he endeavoured to do his best and give a little more thought and feeling in the making than he was paid for, then has he truly enriched his own character and all those of us who take the trouble to observe his work with care; and if we lived in a less material state of mind we should be more entertained by the observation of each other's work. It is unfortunate that we only observe the work of those that the newspapers call out about, and then often only superficially.

An Old Wooden Door.

We frequently find the instinct to enrich exercised in adding only material qualities. As, for instance, the door may be moulded and chamfered, and have bevelled panels, innumerable crevices and ledges for dust, which in no way minister to our thoughts and feelings except to distress them with a sense of wasted labour—labour not only in the making, but in the keeping clean. Such so-called enrichments are not real enrichments at all, though they add to the complexity and intricacy of anything. Unless they add to our pleasures, they are so much waste, not to say poison. If, on the other hand, by our mouldings and panellings we arouse the sense of grace, proportion, dignity, delicacy or greater fitness, we are certainly enriching our work. And these qualities can be made manifest only by our earnestly feeling them.

Think what a keen love of cleanliness could do if applied

to our architecture in dirty towns. How much so-called ornamental enrichment collects dirt and depresses us by harbouring all that is unclean and repulsive—producing feelings the very reverse of pleasure. The very proper pleasure we feel in dexterity is often sacrificed for the sake of elaborate ornamentation that is hopelessly meaningless and sometimes used to hide bad workmanship and bad material. This kind of enrichment gives no pleasure, and cannot stimulate any nice feeling or healthy thought.

We cannot be too simple. A true desire to be simple in all we do, strengthens our sense of fitness, and tends to the perfecting of proportion and workmanship, and a more reverent regard for the natural qualities of material. Carving richly veined marbles and finely figured woods is only the action of irreverence and conceit. We ought to respect nature's veining too much to allow of our chopping it up with man-made pattern. We are too apt to furnish our rooms as if we regarded our wall-papers, furniture, and fabrics as far more attractive than our friends. We don't mind how a hideous chimney-piece destroys the outline of our human heads and protrudes its complex gathering of forms, colours, and textures in distressful restlessness, catching our eye at every glance and robbing us of that calm we need wherewith to see into the soul of our companion. In this climate the fireplace should be the centre of interest in a room, when considered as an apartment. But in actual life it is subservient to human beings, pictures, sculpture, or books, or anything else possessing more thought and feeling. It is the thought and feeling alone by which we must classify the things around us.

Often the feeling of generosity is expressed by making the parts of a building or object larger than may be actually required on structural grounds. For instance, the old roofs were composed of massive timbers, it being in old time often cheaper to use a whole tree than cut it up. There is a certain satisfaction to the eye to be gained by proportions which are in excess of mathematical requirements. We call the architect's work an art, but the engineer's work a profession; and the difference may be traced to just that addition of the spiritual quality of generosity, just that thought and feeling which humanises the work. The engineer's labour satisfies us on account of its fitness; it appeals to our intellect rather more than to our heart.

Of course, the association of ideas is a very important factor in the formation of our taste, and must often be the chief groundwork on which we build up our principles of design. For instance, the ocean illustrates perpetual motion, and nature contrasts with it the horizon as if to steady our contemplation. It is obvious the wave lines and forms give movement, while angularity suggests violent action. The lightning flash we have already alluded to. When the storm rages, does it not hide the horizon, and so increase the sense of violent action?

Would that we more often thought of this principle in our house-building. Looked at from every point of view, most of our houses resemble the forms of storms Hardly anywhere do we see houses standing peacefully as if to stay and calm you by their reposefulness. They look more like spectres that came and went in the twinkling of an eye, angularity and infinite variety of shapes and proportions jutting out at you with surprising wildness as if they were waving their arms impatiently and angrily; and to add to their complexity they are composed of an infinite number of differently coloured materials and textures, just like the drawing-rooms inside, which I likened to drunken brawls. It is our mad rush for wealth and material things that feeds on advertisement, until our very houses shout at us for attention.

A little more love of peace and quietness and a greater readiness to take a seat behind nature, instead of crushing her under our feet, will help to make our buildings more pleasing and restful. Greater spirituality, in fact, should blot out all material vulgarities. Our wonderful resources for gaining knowledge and culture has not made our work more beautiful. The most intimate knowledge of the history of Greece and Rome, what has it done for our buildings? It has failed hideously, and stimulated pride in scholarship. It has made us vain, but not thoughtful; arrogant, but not emotional. Better had we sought out the immortal thoughts and feelings that guided the spirits of ancient times.

Materialism has been the seed we have sown, and we have only tares to reap. Or let us rather say, we are at the end of a hideous night, and now awakening to the necessity of sowing living seed. All around are signs of renewed activity and a reaction from materialism.

IDEAS IN THINGS.

II.

WHETHER you be architects or craftsmen of any sort, you are all interested in home life; so I now invite you all to fancy you are architects, and commissioned to build me a home. Shall I tell you of some charming villa away in Italy, or Kamschatka, that I have seen and liked. Shall I dwell on my own taste, and so control your actions and feelings; because I am paying you, must you be my humble servant? No! My dear architects, let me rather marry your spirits to my own, and see what broad principles of thought and feeling are there already, to work in unison with me—affections common to all men. I will be no slave-driver, but we will work together for good. A united effort on our part to express the best thought and feeling, and foster the noblest ideas, will surely tend to the production of more good than if I, with perfect taste, imposed thoughts and feelings upon you, or for one moment forgot that you had a conscience to obey as tender as my own.

We have only £3,000 to spend on land and building; we have to be in easy reach of a railway, and live with constant thought for economy of time and money. We have a site with trees on undulating ground. The view to the north-west is lovely. But the main road is also on the north-west. Will it not then be better for soul and body to capture the early morning sun, which is never too hot in England, and is a great purifying influence, rather than allow the beautiful view to direct the placing of our rooms? A view can be enjoyed out of doors; it is surely second in value to the sunshine. The latter is very inspiring, and will cheer the sad spirit at breakfast, much more than the view. And it is in the early morning that the spirits of the hyper-sensitive and physically weak need the encouragement of sunshine. So we surely all agree that that which most contributes to spiritual health is the most desirable. We then have fixed a south-east or east aspect, and our prospect will be best from our hall, or staircase, or passages, on the north-western side of the house, where we are more often passing along than resting. No one in his senses

will sit for hours in the house, looking at the view he has every day, no matter how beautiful it is. But it does us all good to have the stimulating joy of a good view intermittently, and for a short time. We enjoy it more if so presented to us.

Our next care in fixing the position of the house is that we should show no want of reverence for trees or natural levels of ground. We can never build anything half as beautiful as a tree; and we agree that human reverence for nature is not a quality to be despised, so we will choose our ground with due regard to all upon it. And for the sake of simplicity and repose, select the most level part. You will express decision and determination by forming a straight path or drive from the road to the house, making it wide to suggest hospitality and welcome, and avoiding any wobbling indecision, which only suggests weakness.

Our need for economy will keep us near the entrance boundary, that is, the north-western side; our love of privacy, which is very much a matter of temperament, may be a good reason for leaving little or no garden between the house and the road. On a small site the entrance must be very evident, and generally overlooks the whole area on the roadside of a house. You may not quite share my love of privacy, but if I ask for it to be considered, even if some may think it a weakness, I shall not be asking you to violate your consciences.

Let our love of privacy be encouraged into reticence, and let our building play into the hands of nature. As a sympathetic accompanist, both in colour and form, we can show a desire to be subdued and quiet and restful, modestly hiding behind trees, if possible, and not towering into the air to look down on them with scorn. We may be sure that all who behold our countryside will regard our building, whatever it be, as of second importance to the natural scenery, and will be most grateful to us if we do not mar their enjoyment. It will affect our design materially if we both feel a desire not to hurt the feelings of any beholder. A jagged, angular outline against the sky, a forest of chimney-stacks, or roofs of purple slate edged with pink binding, complicated, intricate masses piercing every space—there is no end to our power to disturb and excite our fellow-creatures; and we do it often quite needlessly from want of thought and because we do not believe that a sincere desire not to be noisy and restless will help us when we are designing. Furthermore, a feeling for simplicity

and restfulness will result in economy of labour and material, and perhaps leave us with a little spare cash to devote to one spot of sculpture, one point of pre-eminent interest in which we might suggest some merriment like the old grotesques. If, however, we use figure sculpture, let it not be a gentleman without his hat, or a lady with nothing on. For in this climate such exhibitions only excite our pity and discomforting sympathies. Hence the severe convention that the old workers always adopted. If the material selected to represent our merry thought is handled with due regard to its intrinsic nature, we shall be helped to feel that the image is only stone or wood or lead, or whatever it be, invested with ideas—in short, a symbol, the idea of which so dominates that our pity is not aroused. The more materialistic our minds, the more realistic our art. Realistic rendering of material qualities should only be allowed so far as is absolutely necessary for the force of spiritual expression. For the sake of repose, let it be at rest, and not representative of perpetual or sudden action. All workers associate home with the idea of rest. Repose, we hope for, even in the vilest cockney villa. Then must we surely try to suggest in our building the possibility of gaining our heart's desire.

So you will gather your flues together, and collect the rooms in such sequence that will enable you to cover them with one roof, or as few roofs as possible.

Varying planes at varying angles catch and cut up the lights and shades and add to complexity, to the utter destruction of repose and breadth.

If I am wrong in desiring simplicity and repose, and you honestly feel it to be wrong, your clear and only duty is to throw up the commission, for we are at variance on one of the main principles which is going to affect our action throughout the entire building and its furnishing. But supposing we are agreed in the belief that the highest developments of character are only possible under peaceful and simple conditions of mind, that war and turmoil are only the extreme conditions of a want of repose and simplicity—then it is obvious that the home should be the most peaceful, restful, simple servant we possess. And we will run our thoughts over the whole place to see wherein ideas in harmony with and conducive to these feelings can be reasonably manifested. My architect will gladly join with me in a warm welcome to friends, and kindly sympathetic

thought for domestics. That will make us hesitate to spend an undue amount of money on entrance hall and reception-rooms, which would necessitate shabby quarters for servants, and greater pretence to luxury and display than our means could sustain. The visitor must not be disappointed when he becomes intimate, and is allowed into the more private parts of the house. The wide door, like the arms we open to receive our friends, is right and suggests generous feeling, but more than sufficient height in our door only gives the idea of magnificence, which would only lead to disappointment if the rooms, for economy, are low. The same character and scale must be observed throughout, from the beginning to the remotest corner. We need to be consistent, to be sincere. Neatness and order we require in every detail, because they are associated with precision and order of mind, the keeping of appointments and prompt attention to engagements—faithfulness, in fact. These are habits of mind greatly encouraged by neatness and order. And to suggest these qualities few materials are more effective than many.

If the money at our disposal will not pay for oak joinery everywhere, then let us have it nowhere. It is far more durable than painted deal, and more expensive in the first instance; therefore to have the entrance and reception-rooms in oak, and the rest deal, at once suggests the "whited sepulchre." As Augustus Welby Pugin said of the dissenting chapel-builders of his day, "And then they thought the Lord to cheat by building the back parts shabby." If we are to encourage our carpenters and bricklayers to be conscientious in their work in hidden places, we must set them the example by designing our house to have every part of equal quality, so far as is consistent with the use of each part. That is, fitness must be studied. But it would not be consistent with fitness to use deal in my kitchen that I might have oak in my hall; it would be regarded by some as mere vulgar display. One little jewel-like spot of stained glass would be better than any great expanse of material more costly than the average material used throughout the building.

My architect will give me ventilation and a system by which the air of my rooms is kept slowly moving, thus avoiding draughts. He will not make my rooms high, and thus deceive me into thinking them healthy. Height must be controlled by the length of my rooms. Because we are seeking to produce

the feeling of repose, low rooms will help us greatly, and give us the benefit of reflected light, and allow of smaller windows. You will tell me, small windows, when rightly placed, in conjunction with white ceilings and friezes, may produce very light rooms, and have the advantage of preserving equable temperature throughout the year. You will so save me the expense of elaborate blinds and curtains, and give me all the sun I need without the scorching or glare on the hottest summer days; again simplifying not only the furnishing of my rooms, but the cleaning and warming of them.

It is pleasant to feel well protected when the weather is disturbed and angry; so you will not give me great sheets of plate glass, which look like holes in the walls both from within and from without. I much appreciate your regarding me, and suggesting to others that I am to be regarded as a precious thing, to be protected from all violent intrusion.

We like on entering a house to see our wants anticipated. A warm fire in the hall is akin to a warm welcome. You will provide a lavatory for coats and hats, boots, &c., so that mud need not be taken upstairs—as we feel that coats and hats without a soul inside are distressful objects, so they should be stowed away out of sight.

The same material for my entrance hall and lavatory floors will save me the sensation of change and loss of repose; and it will be comforting to feel I am doing no damage before my hob-nailed boots are taken off.

You will think of my taste for music and give me bells each with its individual voice, to be rung with wire in the old-fashioned way, so that through them we may express our feelings and denote our personality. The electric ring only stabs without revealing the assassin: it cannot call like a bell.

The number of servants kept and the extent of my family we may assume you to be aware of; such are purely material conditions that are of great importance, but may be omitted for the moment, while we are considering the less material character of the home.

It is desirable to so plan the house, if it is not too small, that the servants shall enjoy the same freedom to be reasonably merry as I wish to enjoy myself. My noise should be shut off from them, as theirs is from me. The laughing and talking in which one does not participate is not always pleasant. But my architect will find it hard to give me that quality, if I am

not very generous. So if I am ungenerous with my money, it behoves me when in the house to be very generous in my sympathy, and bear the noisy servant with patience. Double doors and double windows are delightful harbingers of quiet. But am I reasonable in expecting such expensive qualities for the amount I have to spend? And will not greed show his ugly face in my house if I ask for too much? If you be my friends, you will check my greediness. Many must suffer if it is allowed to prevail, and then all sorts of nasty ideas will appear. The sitting and dining rooms may be likened to human heads. The door is the mouth, through which many good things may pass. The windows are the eyes, through which we may see the beauties that are superhuman; and the fireplace is the heart of the room, or the countenance of the whole face. If it is a well fire, low down and dejected, it looks cringing and lazy. But if it is high up above the hearth, it seems standing as a good servant ready for service. Here I am, it says, ready to warm all who come near; I am not trying to hide my head in the ashes. Behold my wide, open mantelpiece, broad and simple as if to make room for many. The natural flame and flicker and smoke are so rich and lively in their movement, all the arts of man cannot compete with such form and colour; so my reverent architect will take very good care not to oppose his hand-made lustres and elaborate combinations of textures and colours that will rival the fire's charms and make us indifferent to both in the end. The idea that the burning wood or coal is the centre of the interest in the fireplace, and that grate and hearth and fender and fire-irons are its humble servants, need not prevent these accessories from being pregnant with delicate grace and lively thought and feeling. All we ask is that they be reticent and unassertive in colour; never for a moment put into competition with the superhuman fire; and I don't want to be frightened out of my life by having a hearth that will break if I by accident drop the poker.

You will so proportion my fireplaces to their rooms that where I enjoy the company of my family and friends, there shall be ample room for all to gather round, and feel the moment they enter that there is room. It is painful to enter a room and feel you are disturbing any one. This feeling can be avoided by you, if I allow you to build and furnish my home. If all I care about is the needs of the flesh, I shall

save a lot of thought and feeling by handing over my home to a universal provider to be furnished and equipped. All the thinking that will be needed will be to tell him what foreign style or ancient period he is to follow. And even that amount of thought I may save myself, as it is only one of price. If we fix that, Mr Upholsterer will do all the rest. But why should we turn the house into a co-operative store, and advertise everybody's mustard and credulity, when all the while my architects are bursting with thoughts and feeling that people read novels and go to churches and theatres to think about, because they have not got attractive ideas in their own homes? Here, in this hall, are the same elements that have written volumes in stone and wood, glass and painting, and all literature besides. We only need to turn the current of our energies on everyday articles of use, and they shall speak to us of beautiful thoughts and feelings, as they spoke to our forefathers in the thirteenth and fourteenth centuries.

With this difference, that we have changed our mode of life, and many methods of work, many materials and material advantages have been discovered which must change our forms, but need not change our feelings. The love and protection of home has not, or should not have died out with battlements. We have now to protect our homes from the onslaught of the fraudulent, the insincere, the gross, and the ugliness of thoughtlessness and animalism. I need you to barricade my doors not against battering rams, but against the poison of pretentious ornament and elaborate shams.

Will you help me show my respect for local conditions of climate and soil, not ignoring altogether the modern facilities of transit, but as far as possible selecting your material to harmonise with local character in colour and texture? For instance, can there be any harm in using green slate from Wales or Cumberland in counties that produce no slate, considering that the green slate is far more harmonious with nature than red tiles, and makes a more durable roof? Then, again, you will tell me oak was once the most durable and plentiful building wood in England. Now we can get it from Austria better seasoned but much softer. It is more quickly grown than English oak, and therefore easier to work, but not so beautiful; and the latter is hard to get well seasoned. Our habits of looking for material excellences, fine finish,

smooth, polished surfaces and perfect workmanship, has made us shy at English oak joinery, when it opens at the joints, cracks, and winds and gets uneven. Are we right in adopting the French taste for French polish in this way? I think not, and give you leave to pardon any roughness, provided it is due to natural causes and not to man's carelessness or fraud.

In old time, when the carriage of materials was more costly, local material was more used, and only the vain rich made use of imported material. Vain we call them, because we think it was vanity of wealth or travel that led them to such display. And so we have come to notice and be greatly charmed by the characteristic colour and texture in the old buildings of different districts. There is a harmony in nature's materials both in colour and texture, and you notice it among the peasants of some counties still: their eyes and their dress harmonise with the colour of the rocks and soil, and are eloquent in their appeal to our sense of fitness. It is when you get near great towns you find materialism more pronounced than spirituality. Then all sorts of influences of a material nature come in to destroy the intuitive grace of the ignorant peasant, as if Providence forced us to develop our own faculties by withdrawing our intuitions where opportunities for self-culture were more abundant, so leaving us to feel that we have to find out the laws of harmony and beauty for ourselves. We have begun by floundering, but we are in health, because we are conscious of and dissatisfied with our floundering.

You, my good architects, can help to steady my tottering by your manly defence of those ideas and feelings, which you feel within your own breasts, and know to be of universal esteem. The repose and breadth of the rooms I leave you to arrange, as I ask for no cornices which produce lines of shade, no ornament on my ceiling which I cannot look at without paining my neck—ornamental ceilings are fit only for large rooms and halls. Then with deep frieze and picture rail high enough to take pictures of the right size for my rooms, the utmost effect of length and width will be given to each room, which in a small house is more valuable than height. By omitting the cornices you avoid emphasising the height of the rooms, and you also omit so many dust traps. To some minds the very absence of these things suggests cleanliness and order.

I want no finger-plates, because they suggest that I keep dirty fingers in my house.

You will arrange my rooms with their furniture so that each piece has the place most suited for its use, with light helping to make it more useful, so that we feel no single bit of furniture is quarrelling with or harassing another, and everything shall have its useful purpose. Thus proportion and grace and the intention to serve a useful purpose will provide the very best elements of beauty, and ornaments will be little required. If you give me one or two in each room, such as pictures and sculpture, they will be infinitely more impressive when alone than when in a crowd. You cannot listen to two people talking at the same time, so we don't want a thousand ornaments to be bawling at us all day long. The fewer ornaments you give me, the more keenly I shall demand that each shall be of high quality. Again we feel that simplicity involves perfection. The more simple the ornament, the better must be its proportion, the more graceful and the more noble its appeal to my mind and heart. By your great discrimination you enhance the value of the artist's work, you draw special and careful attention to it, and allow it to engage undivided attention, which is far kinder to all concerned than plastering the walls with lovely pictures from floor to ceiling, giving the effect that I was infinitely proud of my wealth, and infinitely indifferent to my friends' enjoyment. I would rather delight you with the contemplation of one ornament, than weary you with a museum full, however beautiful the objects might be. Museums are places for special study, and when used as such are most valuable.

When you design my tables and chairs, you will think of the machine that is going to help in the making, and choose such shapes as are easily worked by machinery. When labour was cheap and men uneducated and less fit for more intellectual work, the legs and arms of tables and chairs were charmingly curved and formed by hand into fanciful shapes, and delight us still with their human subtlety. But now, alas! your wood comes to you machine-sawn and machine-planed, and the only thought and feeling you can put into your furniture must be through a mechanical medium. So right proportions and the natural qualities of the wood, the suitable colour and texture of the upholstery make up your limited vocabulary. You can tell me if the master and mistress have

a sufficient sense of importance to give themselves high-back armchairs to dine in, while their family and friends have low backs and no arms. (If all had high backs, by the way, it would be difficult for the waiters, unless the chairs were very wide apart.) This idea of the importance of host and hostess is not to be despised; it is closely related to ceremonial of all kinds, and ceremony was always associated with kingship, and kingship with self-control. The origin of the crown, you remember, was to symbolise self-control by the binding round, controlling, and confining of the head with a band or ring. It was believed once that self-control was the first and essential quality for the control of others. The nimbus of the saint first of all denoted this quality, until men became materialistic, and then self-control was translated into power and glory. Crowns are now used to denote splendour. If I give splendid pecuniary assistance to my political party, they will procure for me a splendid crown. Then shall you address me as Your Lordship. But first you must be lord over me; that is, guide and control my affections, and express the better side of my nature, as in harmony with the better side of your own. You may find the ceremonial ideas dependent on my social position in a great measure; but not wholly. Wealth fixes social position in our days, but breeding or heredity settles instincts. So you have to find out if I have a taste for putting on my boots in the dining-room or not, and many other little habits which are fairly innocent and in no way material to the moral and spiritual verities that we are most concerned with. The less attention is drawn to class differences, the better; so I shall leave it to you to suit your designs to my little idiosyncrasies, remembering, as you will do, that the vital thoughts and feelings are common to all, and if there is a difference it is only one of degree.

Enough has been said to lead you to introduce ornament, that is, machine-made mouldings and pattern and decoration of any kind, only when it is needed on practical grounds, such as the moulding of a skirting board to avoid the wide ledge for dust at the top, or the rounding, splaying, or moulding of exposed angles, or the emphasising of horizontalism with a view to suggest repose, or the binding together of points of interest by strings of moulding, delicate lines that express unity and rhythm. You will naturally concentrate the effect of richness and focus the attention on those objects that have most

to say to us, things which appeal most readily and profoundly to our thoughts and feelings; you will hesitate to waste mouldings on places and things, when the addition of such can add no interest and no joy. The mere effect of meaningless elaboration is called by some the effect of richness. But we want real richness, not the effect of it. And real richness is not possible without thought and feeling. Miles of machine-made mouldings cannot arouse a moment's pleasant thought or feeling.

The effect of real richness is only obtainable by having precious materials, elaboration concentrated and harmoniously arranged, and eloquent with thought and feeling.

Your attention to this principle is going to affect your design of every detail, including spoons and forks. It leads to the full use of the individual characteristics of the different materials we are using, so that interest is gained by the observation of natural qualities, and is not dependent on artificial elaboration. The full force of our thought and feeling not coming into competition with nature, but added to it only in certain places. Everything we have to handle may be so fashioned as to show a scornful indifference to our feelings or a desire to please. It will either attract or repel our touch.

We do not run to embrace the hedgehog, nor does any one desire to wring the neck of an apostle—yet we find the apostle on the handle of spoons. The significance of which —but for our demand for fitness—we should be expected to applaud. But as a handle it is no better than our fire-irons, door knobs, knockers, and innumerable other things we have to touch, which are cast and chased or wrought in rugged irregularity, as much as to say, If you come near me you shall be stabbed and bruised; when, instead, the idea of friendliness and loving help could be suggested by making all our handles not only pleasant to feel, but looking attractive to feel. The same may be expected of caskets, inkstands, ash-trays, and everything, in fact, that we have to touch. Your desire to serve me well and avoid paining me must help to convey pleasant thoughts and feelings.

You have my guest chamber to arrange. Will it not charm the visitor more, to find every little want anticipated, writing and reading provided for him so that he may retire and yet be entertained, if he so desires it, rather than to

find his room a perfect reproduction of the bedchamber of a foreign potentate? If my friend be an archæologist, no doubt at first he will be overjoyed to find a room of revived antiquities, but may end by swearing because he cannot find a button hook. But if the room be of the former type, will he not exclaim, Oh, bless mine host! and go down to dinner with an appetite?

In olden time, when people believed in knights and fairies, the fourpost bedstead suggested protection while you slept, and gave an air of solemnity and importance to the bed which was once regarded as the soul of the bedchamber. But since then the sanitary expert has come along, and in his craze for perfect physical conditions, he made us all believe we needed more fresh air than our forefathers, and iron and brass bedsteads were found to be capable of glitter and tawdry effect. They were cold homes for insects and inhospitable alike to them and all who liked glowing thoughts. The designers were so cold-blooded that they arranged metal balls conveniently high to chill your hands upon. The one idea was air space—air space. Are prophets and poets bred on air space? If not, what is?

The proper ventilation of the bedroom and healthy conditions of rest do not entirely depend on air space or metal bedsteads. Indeed, the old fourposter was much more calculated to inspire right thoughts and feelings, and in a properly ventilated bedroom is as healthy and clean as any metal atrocity.

Another important element you will have to consider is the carpets. I will not ask you to provide them with pattern, because pattern hides dirt. The fact that dirt is merely hidden ought only to satisfy the ostrich. He is the gentleman, I believe, who thinks he is not seen when his head is hidden in the sand. We have already come to the conclusion that pattern to be worth anything must contain thought and feeling; so the floor is hardly the place to look for it, unless it be in a small mat that is not cut up by furniture. Besides, we must remember that the floors, like the walls, are backgrounds to things of greatest interest and importance. And therefore the pattern, if we have any, should not interfere with the attractiveness of the objects seen against it. That is, if we want to avoid quarrelsome, noisy confusion. Remember you are

considering an average man's home. There are places, of course, where handsome and elaborate floors and ceilings are most fit. The Persians have shown us what perfection the carpet may be capable of, but they have also shown us how to use it when made. They do not cover it with little tables of plush, and use it as a background to museum and bazaar articles.

Much that we have been considering is not applicable to the rich man's palace or public building. When speaking of the fireplace many of you will have recalled the exquisite examples of richly carved and emblazoned chimney-pieces in which the symbolic interest of the decoration is made of greater importance than the fire by reason of its being charged with human thought and feeling, making it in some measure a more intellectual treat to behold than the first which arouses a material and sensuous kind of pleasure.

In like manner magnificence of all kinds was excluded by my poverty. My station in life must determine your indulgence in the rendering of ideas most fit and harmonious. You will not hang around my hall the dead heads of wild beasts, unless you think me a bloodthirsty murderer, vain of my killing powers; and even then your better natures would check your encouragement of my vice.

Let natural qualities strike the keynote of your design. If you are building a garden pool—think first of the water, its crystalline quality and reflecting power, which will be strengthened by having a dark material as a background or lining, so emphasising the chief charm of the water, and showing a proper reverence for its natural beauty. But on the other hand you would provide a washhand basin with inside as pure white as you can find, because with a small quantity of water *that* will accentuate the transparency and purity which attract one to wash in it.

It is in this way we should reverently follow nature's suggestions, and not be absorbed by our own sensuous likes or dislikes of certain colours and textures.

If, then, in building for me you find so many conditions and feelings to be thought of and served, every one you have to work for must in like manner furnish you with similar conditions, varying as the personality varies. And if we will respect all these variations in character and temperament, it

will add enormously to our pleasure and interest in the work of life.

Drumming and drilling human beings into the same conventional mould is madness and folly.

Instead of studying the five orders of architecture, we had far better study the five orders of Englishmen: The really noble, the would-be noble, the cannot-be noble, the sometimes noble, and the half noble. As Pope said, "The proper study of mankind is man." This would give immense vitality to our work, and we should feel the perpetual progress of the immortal spirit of things. It is enervating to dwell perpetually on dead and perishing materials. We instinctively recoil from all ideas of decay, and rejoice in the permanence and stability of nature's laws; and so we try to build with imperishable material and select all those that are most lasting. This quality of permanence and stability is only relatively possible in the material world. But it is the very life of the spirit. The idea of durability is one we will sacrifice much to convey.

The use of animal life is dependent on our spiritual activity. If we are thoroughly materialistic, we prefer fruit and flowers in our wall-papers and fabrics, and feel hurt by the mutilation of birds or animals when cut round furniture or upholstered on to seats. But if the rendering of animals in our decoration is so conventional that we feel only that the spirit of the beast is recorded, no pain is felt. The martlet in heraldry never pained any one, but a very realistic bird with all its feathers carefully drawn and its legs cut off would pain us at once, the dominant impression or idea being, a very material bird injured, mutilated, and maimed. While, in the case of the martlet, the illustration is of the bird spirit; it is a generic bird, not any particular species. And our thought is kept in the region of spiritual rather than material realities. It would be well if this distinction could be understood and appreciated more generally, because there is a vast amount of prejudice against the introduction of animal forms in our decoration which is entirely due to our materialistic attitude of mind. Materialism has been the cradle of realism in art. The life of animals might be made a source of stimulating joy to our own lives. We all feel a sense of pleasure when the wild birds sing, and the idea of their lovemaking and aspiring and growing more good and useful every day is delightful, and ought to be recorded in our everyday articles of use, as well as in our natural history books.

What is it that makes us all delight in Shakespeare's work? Is it not his own spiritual delight in spiritual ideas: in life, in thoughts and feelings, rather than in things?

You shall perch four eagles on my bedposts to drive away bad spirits, as the Byzantines believed, and rest my fire-irons on the backs of brass cats, not dogs, for cats are the most faithful fireside dwellers. On my table let there be fruit and flowers and one or two *symbolic* animals, and let the foods be handed round. A boiled potato is not inspiring, however well it may be served; and, moreover, the momentary glance at food is more appetising, therefore it is better on a side table.

The living, conscious life is far more healthy to dwell upon than anything that is dead or lifeless. So we desire to add thought and emotion to all things around us.

A well-known paint manufacturer told me the other day that when his men brought him a new colour or new mixing they were pleased with they always spoke of it as "she." "Isn't she a beauty?" they would say; showing their pleasure and interest in their work led to their endeavour to invest it with spiritual significance, to give it a personality. Surely it is a natural instinct to attach spiritual ideas to the materials that please us. Were this feeling more common we should be less led away by fashions in things.

In lighting by day and by night, I invite you to bestow much care. The essential idea suggested by light is activity, and the chief material consequence is cleanliness. We all like abundance of light for work or play. It stimulates action. But we do not want windows that have to be covered up by the upholsterer morning, noon, and night. Precious as the light is, we must not be blind to the soothing mystery and charm of shadow and twilight. The suggestions of repose and mystery are sublime, and as necessary as the brilliant light. To light up an ordinary room all over at night is to destroy all sense of repose. Again observe nature, how she lights by day and by night. There is always one dominating point most brilliant and never more than one, attended by countless degrees of subordinate brilliancy in reflections around it. The old builders understood the value of a dim religious light far better than this materialistic age. So in my dining-room you can suggest by your method of lighting the splendour of my guests and the richness of flowers and fruits on my table, while contrasting them with the solemn mystery of the gloom all

around the room. When I look across the table into the faces of my family I do not want to see them confused with ornaments, and furniture of any kind behind them, but to behold the guardian angels hovering in the shade, or the glittering haloes that my good spirit may perceive.

We have alluded to many trivial details of domestic life, believing that great ends have small beginnings, and that if the thin end of the wedge of spiritual significance can be driven in among the common objects of life, it will raise our interest and stimulate our higher nature and lead to noble thought and feeling by which we hope to advance in character and conduct and brighten many a dark place in this vale of tears.

The only instruction I have, then, to give you, my architects, amounts to this: Think of the needs of the spirit more than the needs of the flesh. Then, and then only, shall we witness really good and great architecture, really good carpentry, and really good work of any kind.

LECTURE IX.

IDEALS IN BUILDING, FALSE AND TRUE.

BY

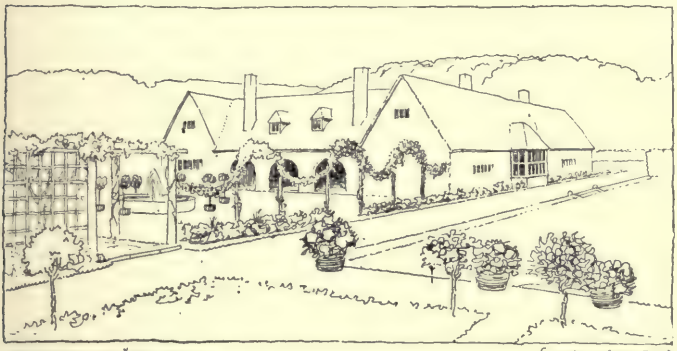
M. H. BAILLIE SCOTT.

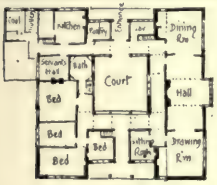
Proposed House in Switzerland—View of Garden Front.

M. H. Baillie Scott, Architect.

IDEALS IN BUILDING, FALSE AND TRUE.

I THINK we all understand what is meant by the term "Ideal"—an aim or aspiration of the mind—a dream which we may hope to realise. It is probable, however, we are not all so equally agreed as to what is understood by building. In these





A Country House.

By M. H. Baillie Scott.

days building has become a science, rather than an art, and it is of the art of building, rather than of the science of building, I wish to speak. And so it becomes necessary to define art in some way. Well, as you know, a great philosopher—Tolstoi—has written a whole book in answer to the query, What is art? It will be enough for me here to roughly define art as an occupation in which man seeks to

satisfy, not only the need of his body, but the desire of his heart. We are then going to consider building for once as an art.

We will not speak of architecture, because all architecture worthy the name is merely building which has flowered into beauty, and before we can hope to gain that flower we must grow the tree. We must have an art of building first, and our builders and craftsmen must be artists as they used to be. In order that they may become so, it will first of all be necessary to set them free from the malignant influence of certain ideals in building which are now universally followed.

The first of these to be considered may be called "The Mechanical Ideal." From the point of view of the modern architect, the modern builder and his men in the treatment of their materials, one aim alone is followed. It is to make all surfaces smooth and all lines mathematically straight. The high-class joinery of our modern factories is turned out with inhuman precision to the architect's pattern—the lines of the mouldings vanish into the picture with cast-iron rigidity. Every surface is as smooth as hands can make it, every edge as straight, and every one is apparently pleased with the result. It is universally admitted to be high-class work, and as such could not be done with greater accuracy or greater regularity. And if building is to be considered as a science, we might agree with this general verdict of approval—but art has different aims, and cares nothing for mechanical regularity. Art takes up the materials sympathetically, affectionately, and discerns some character to be developed by proper handling. Instead of the callous, brutal methods of the modern factory, art makes the workshop into a school, where materials may be "educated" in the literal sense. And the chief aim of this education is not to force the material into the strait waistcoat of preconceived forms, but so to deal with it that, having first sympathetically divined its character, that character may be expressed properly subordinated to the fulfilment of practical functions; giving play to individuality in the material only so far as it does not militate against the general weal, giving a finished education to those materials which possess the necessary qualities for development, and letting poorer materials depend on suggestion of their natural graces. As an example of what I mean, let us take oak as the material to be dealt with. For the floor and for such of the woodwork of a building as doors

and panelling, it will be obvious that a certain degree of smoothness and straightness is necessary and desirable. The degree of finish which can be naturally obtained by the use of the old hand tools—the chisel and the gouge, the draw-knife and the adze—will still express much of the character of the oak, its toughness and woodenness, and will still not leave the work too rough for its position and function. Something of the very nature of the material will find expression. It will be full of character and charm, all of which would be lost if the timber were made smooth and straight in the modern way.

If we next consider the beams of a ceiling or the timbers

The Hall, Sunningdale.

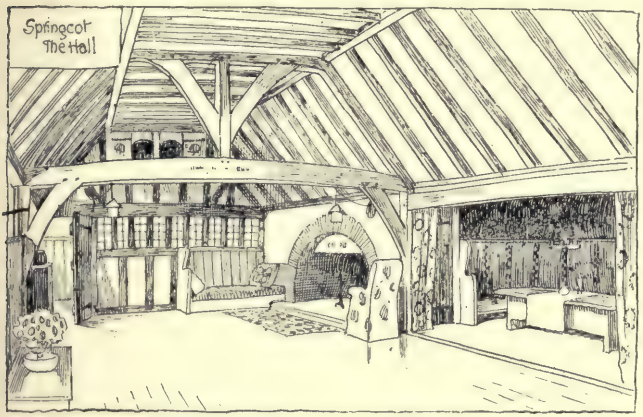
M. H. Baillie Scott, Architect.

of an open roof, it will be at once apparent that these can adequately fulfil their functions in the structure with less sacrifice of individuality. It may be remembered here that the timber we are using was originally a tree, and we may therefore suggest something of its previous existence, so that the impression it conveys to the mind carries with it something of the woodland. Choosing for use as a beam a tree of the necessary size, this may be roughly squared with the adze, leaving here and there at the angles a hint of its original rounded section, and letting the required camber of the beam be formed with the natural lines of the grain. So long as individual characteristics are thus kept properly subservient to

practical uses, the building will gain immensely in interest and beauty; and the various gradations of finish nicely adapted to uses will give a variety and charm to the work which we at present only associate with the buildings of the past. Such slight modifications, each in itself perhaps hardly perceptible, will have a cumulative effect and produce in the end that slight difference which makes all the difference.

In all the various materials used in building, scope will be found for the expression of the character of each. In the treatment of wrought-iron work, the best forms will be found to be those which suggest that this cold and hard substance was once, in the heat of the furnace, soft and ductile. And so with other metals we may find a way to express the brassiness of brass, and the leadiness of lead. In considering all the varied artistic achievements of the past, we shall find again and again that a certain degree of mechanical imperfection is the inevitable concomitant of beauty, and the more vital the work the more noticeable does this become. Let us take as an example an old house, say, of the Tudor period. If we try to analyse the charm of its exterior, we shall find how largely this depends on the character of its outlines and surfaces. The ridge line of the roof against the sky is not straight, the courses of the tiles are uneven, the walls are not absolutely vertical, and the courses of the brickwork not absolutely horizontal, and the bricks and tiles are not even in colour or exactly regular in shape. Entering the house we shall find everywhere the same slight deviations from regularity; and as with outlines so with surfaces, each has its proper characteristic texture. Everywhere mechanical perfection gives way to expression of character in many subtle ways. Do not imagine that this is due to want of skill, for to get the true character of such a building is not an easy matter. Do not suppose either that I wish to advocate mere crookedness and the tumbledown picturesque: I merely wish to insist on expression of character as an ideal, instead of mechanical perfection. For the great objection to mechanical perfection of work as an "ideal" is that it is an "ideal" which may be realised—the only goal worth striving for in art is that which can never be reached. In trying instead to express character, our work will become full of suggestions of the infinite rather than statements of the finite. And that is the whole difference between art and science.

In the village near my home there is an old barn and a new church. The church, as you may suppose, is in the Gothic style of architecture. I have no doubt that phrase alone will convey to you exactly the kind of church I mean. It cost, I understand, about £20,000; and because it has cost so much, not only the inhabitants of the village, but the majority of those in the neighbouring town, are all fully convinced that it is everything that a church should be. As a matter of fact, to the few who care about such matters, it is a building without a soul, a lifeless replica of the ancient art. It may be briefly described as a pious fraud. And this is due,



M. H. Baillie Scott, Architect.

not only to the conception of its design, but much to mechanical workmanship. Now let us consider the old barn. A thing of beauty within and without, not only from the tone and colour which time has given, but in all essentials of its structure. As a new building it would be no less full of charm, and yet it does not pretend to any architectural style. It is merely a piece of building, and not an expensive building either. Great posts and beams, roughly wrought, support its roof, and the whole structure is full of suggestions of infinite things. If we must worship under roofs, why cannot we have such roofs as these to worship under? How strange is the

whole conception of modern ecclesiastical art! Why should there be a special brand of art for ecclesiastical purposes? Why should we be only Gothic when we go to church? The real Goths were Gothic all the time: home and church were alike. How different has now become the modern villa and the modern church, and yet how alike in their lack of all that constitutes beauty in building!

I have dwelt at some length on the question of mechanical workmanship, because it seems most vitally important that there should be some reform in this matter before we can have any true building again. I must now take you on to the central ideal we have to consider—the "Ideal of Truth." If you look around you at the creations of nature, there is one striking fact in them which cannot be overlooked. It is that the forms of things are always the outcome of functions. The leaves and branches of the trees are all so shaped for certain definite practical purposes in the economy of the organism. The wild rose which seems to shed a nebulous light of delicate beauty from its pale petals amidst the sweeping curves of its thorny stems, the bramble, with its pastel shades of puce pink and whitish green, the bryony, the clematis, and all these wayside plants do not appear to aim at being beautiful: rather their forms are the final and logical outcome of law. The highest beauty, is it not, perhaps, the resultant of the closest obedience to the greatest truth? And if we apply this to art —to the building art in particular—we shall find that its products, if they are to be true like the creations of nature, must clothe themselves with forms which are the outcome of functions.

You must not, in designing a building, first appropriate a Classic column and entablature, and a few other indigestible trifles, and then try and work them into your structure. It is the fatal influence of all these developed styles of the past, which our students are set to study, which leads to all that unreal and histrionic architecture we see about us to-day. Let us try and remember, once for all, that the forms and features of building have no reason for existence at all apart from their uses. In the human frame the eye would be useless without sight, the arm useless without might. And so in a building, whenever the forms arrive naturally and obviously from the requirements of the structure, they achieve a kind of almost vital beauty. The

column, the arch, the buttress and all the features of Gothic art thus lived once. But if you try to build up a Gothic church out of such features, you will find it cannot be done.

There is a better way than that. First cast aside all the useless lumber of the past, which will only obscure the real problem before you, and then let your building to a great extent design itself, its forms evolving themselves naturally from the conditions. No one is bound to produce ornate and expensive-looking architecture. We are not obliged to be bombastic and diffuse in our statements in stone or timber, any more than in our words. But we are all bound under penalties to be true. Let us then at least

House at Sunningdale.

M. H. Baillie Scott, Architect.

be true if we can at any cost, even if our communication is no more than yea, yea, and nay, nay.

> "Let things be—not seem,
> I counsel rather—do and nowise dream;
> Earth's young significance is all to learn,
> The dead Greek lore lies buried in the urn,
> Where who seeks fire, finds ashes."

Nothing is so essential to a building as the quality of truthfulness and reality. Why do we admire so much those fine old structures of half-timber work in old English villages? It is not merely because of their superficial charm, but mainly because we recognise their inherent truth. The whole arrangement of their timbers represents the actual structure

of the building, and we shall find throughout the same principle.

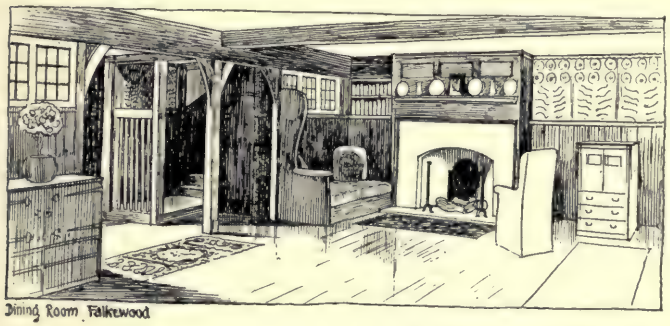
Everywhere we find function expressing itself in form naturally and inevitably. The creators of these dwellings had not, it is true, our modern advantages of education and research. They knew nothing of Classic temples, or of buildings designed in other lands. They worked out their own local problems in their own way unencumbered by unnecessary knowledge, and so could bring the whole of their unbiassed intelligence to bear on what they had to do. And the essential fact about their work is its unpretentious reality.

"The Real," says Carlyle, "if you will stand by it, is respectable. The coarsest hobnailed pair of shoes, if honestly made according to the laws of fact and leather, are not ugly, they are honest and fit for their object: the highest eye may look on them without displeasure, nay with a kind of satisfaction. This rude packing case, it is faithfully made: square to the rule, and formed with rough-and-ready strength against injury—fit for its use; not a pretentious hypocrisy, but a modest, serviceable fact; whoever pleases to look upon it will find the image of a humble manfulness in it, and will pass on with some infinitesimal impulse to thank the gods."

A few words may here be added as to what may be called the "Ideal of Novelty." We touch here the politics of art. You may be Conservative, Liberal, or Radical as you will! It is better to belong to no such parties, but to let your desire to conserve and hold fast old things that are good never deter you from as eagerly accepting new things which are good, or from radically rooting out old things that are bad. Thus you will never merely accept old things because they are old, or new things because they are new; but select from each the good thing because it is good. Do not be too ready to scorn what is called the "New Art." It is true the greater part of it is sorry stuff; but you will still find, amongst much that is affected and bizarre, here and there the right note struck: here and there the new thing which is also a good thing. It must also never be forgotten that all the old work we admire so much was new once, and when it first appeared it must have been as startling in its novelty as any of the products of the "New Art" of our day. What a marvellous innovation must have seemed that

first creation of the delicate beauty of Early Gothic art, when compared with the clumsy, rude, barbaric Norman work! And art, if it is alive, must always so change and develop; for in the continual flux of human affairs, to stand still is to fossilise and decay.

We now have briefly to consider the "Commercial Ideal" in building—the outcome of the mind which thinks in terms of pounds, shillings, and pence. We find this expressed on all sides by buildings which are mainly valued and wondered at because they look expensive. Now, although it is undoubtedly true that the range of an artist's opportunities may be increased by allowing him the use of all the precious materials the earth yields, yet the final value of his work must



M. H. Baillie Scott, Architect.

be measured by the degree of skill with which he uses his materials, however poor or rich they may be, and not by the value of the materials themselves. A well-designed statue in common clay is better than one badly wrought in precious marble. And in building, the humblest materials will give us opportunities not to be despised. It is unfortunate that so many of the larger modern buildings are necessarily entirely commercial in their functions. They are places primarily for getting and spending money in. It is necessary that they should reek of wealth. And then they must sufficiently impress all those silly droves of people who go about the world foolishly gaping at fine buildings, and whose ideal of life is represented by surroundings which emulate what Mr Chadband

calls "the mansions of the rich and great." You may say of this kind of architecture that it is all that ever went with evening dress. It is an illusion, an unreality, and a cheat.

The next false "Ideal" which we now have to consider is the "Utilitarian"—the more insidiously dangerous because it is half true. No one can deny, for instance, that houses should be conveniently planned and fitted with all proper appliances for comfort. But the man who cannot live by bread alone is repelled by all this mere utility. All the material advantages which Mr Wells looks forward to in the future house—the electric stoves for heating, and all those appliances for saving labour which, in the end, reduce the whole function of living to the touching of a button—all seem inspired by that inhuman calculating demon which lurks in all mechanical devices. Driven from such a dwelling one might take the road in response to Walt Whitman's appeal:—

> "Allons! whoever you are come travel with me;
> Travelling with me you find what never tires,
> The earth never tires,
> The earth is rude, silent, incomprehensible at first,
> Nature is rude and incomprehensible at first,
> Be not discouraged, keep on, there are divine things well envelop'd.
> I swear to you there are divine things more beautiful than words can tell."

Divine things! Yes, when man is most truly himself he can be satisfied with nothing less than those. It is the whole mission of art to supply that demand; and in no better way can it be supplied than in those constant influences which our homes exert over our lives. But in order that we may benefit by such influences, we must try to rise above modern materialism, and believe, with Walt Whitman, that there are divine things in nature and in art.

The Master of the Carpenters' Company I know shares with me an enthusiastic admiration for Carlyle. Let me quote here, in conclusion, a passionate protest of his against the utilitarianism of the nineteenth century:—

"Most excellent Fitzsmithytrough, it is a long time since I have stopped short in admiring your stupendous railway miracles. I was obliged to strike work and cease admiring in that direction. Very stupendous indeed; considerable improvement in old roadways and wheel and axle carriages; velocity unexpectedly great, distances attainable ditto, ditto;

all this is undeniable. But, alas! all this is still small beer for me, my excellent Fitzsmithytrough; truly nothing more than an unexpected take of mice for the owlish part of you and me. Distances, you unfortunate Fitz? The distances of London to Aberdeen, to Ostend, to Vienna are still infinitely inadequate to me. Will you teach me the winged flight through Immensity up to the Throne, dark with excess of bright? You unfortunate, you grin as an ape would at such a question; you do not know that unless you can reach thither in some effectual most veritable sense you are a lost Fitzsmithytrough, doomed to Helas' death realm and the abyss where mere brutes are buried. I do not want cheaper cotton, swifter railways; I want what Novalis calls God, freedom, immortality; will swift railways and sacrifices to Hudson help me towards that?"

A Cottage at Letchworth, Hertfordshire.

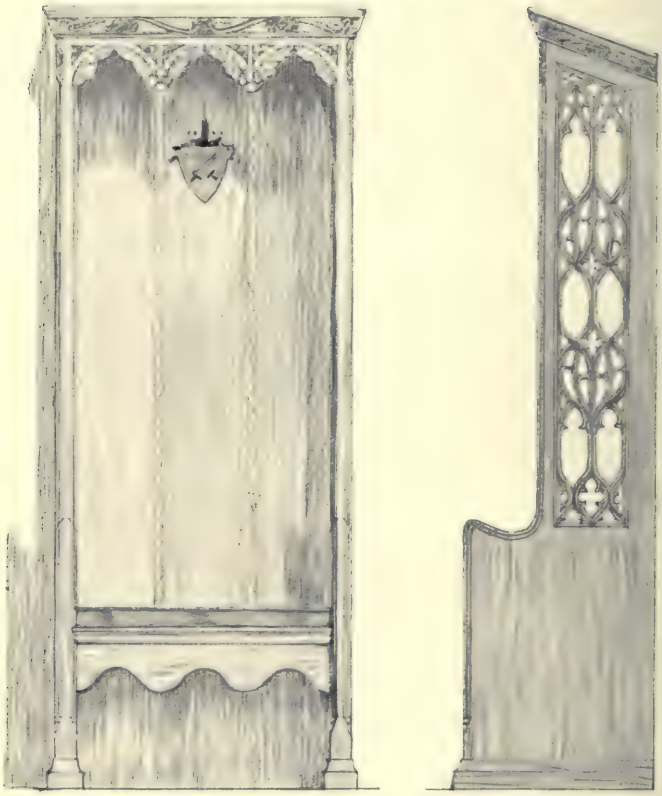
LECTURE X.

HOUSE AND CHURCH FURNITURE.

BY

CHARLES SPOONER.

DESIGN FOR A BISHOP'S CHAIR



FRONT SIDE

SCALE THREE FIFTHS INCH

Designed by Charles Spooner.

HOUSE AND CHURCH FURNITURE.

FURNITURE making is the finest and most finished of the building crafts, and one of the many which make up the great art of architecture. All that has been said in this book about the right and sensible use of material applies to furniture just as much as it does to building. The first things that the maker of furniture must think about are utility, strong and suitable construction, and the nature of the material to be used. These things are too often overlooked. Many of the designers, so called, are mere draughtsmen, whose attention has not been directed to these things, and, indeed, to do them justice, they are not asked to think about them. They make sketches, sometimes very clever ones, of furniture in this, that, or the other style, more often than not with all the good qualities of the "style" left out, and many of its affectations and mistakes left in. These sketches, or tracings of them, are handed on to a manager, or foreman, who has to make working drawings and interpret as best he can the "features" shown in the sketch. It generally ends in these same features being stuck on, having no relation to the actual thing. The draughtsman is generally shut up in an office or studio away from the workshops, he draws his inspiration from books, and sketches in museums and elsewhere, and never comes in contact with the actual work or material, or with the craftsmen, and so has little or no opportunity of learning about material and understanding its nature and characteristics and how it should be used. The conditions under which the craftsman has to work are too often equally wrong. The work is so much subdivided and over-regulated that the craftsman is in grave danger of losing his manhood. I am told on all sides that directly a man shows that he is taking any interest in his work he is at once put on to another job,* in case he should take a little longer by doing his work

* Cabinetmakers or joiners usually describe each thing as "a job."

as well as possible! By these methods the craft of the joiner and furniture maker is being killed. There are still workshops (I trust many) where these methods are unknown. I would like to suggest to this Worshipful Company that it take up this matter, inquire into it, find out the facts, and try to find some way of mending it. I believe that the representatives of the craftsmen on the one hand, and of the employers on the other, could and would give information, some of which would be surprising. I am optimist enough to believe that no one really wants such a condition of things. It has grown up in a short time, and surely it is not beyond the wit of the men of to-day to find a way of mending it?

The object of these lectures is, I understand, to help the craftsman to take an intelligent interest in his work, to stir him up to do work to-day which will compare favourably with the work of our forefathers, not only in quality of workmanship, but in beauty. I understand, too, that this Worshipful Company is making great efforts to secure for the craftsmen of the future opportunities of learning their trade. Mr Schultz referred to this matter at the beginning of his first lecture, and I should like to associate myself with all that he said about the training of craftsmen, and the association of the City guilds with the trade unions. I am convinced that he is right.

Now if the conditions which I have indicated continue and grow, and if trade cannot be carried on except on these conditions, the objects and aims of the Worshipful Company of Carpenters in organising these lectures and the training of craftsmen are mistaken, and will be frustrated, because very few craftsmen would be wanted—there would be little or no work for them to do. What would be wanted would be, on the one hand, a large number of men of very limited intelligence and character, who would learn to do one small process well and quickly, and be content with that; and, on the other hand, a small number of very highly trained men to organise and direct the work.

I feel that there is a grave danger of this deplorable condition growing, if men are discouraged, nay, prevented, from taking an intelligent interest in their work, and I feel, too, that this is the right time and place to draw attention to the danger.

Now let us turn from conditions under which work is done to the work itself. As I said, the first thing to think of is

utility. A piece of furniture is wanted, *not* as an ornament, a thing to look at, but for a definite purpose. Unless it serves this purpose, whatever it may be, there is no reason for its existence, and the better it serves its purpose the more satisfactory it is. This is, of course, rather obvious, and directly it is put into words every one agrees. But it is a consideration that has not always been, and still is not always kept in mind by those who make furniture. Sizes, arrangements, and shapes that are customary are apt to be accepted without thinking whether they are the best for modern uses. Many of them can hardly be improved upon, they are the result of many generations of experience, and have been proved to be the best. If a size or a shape is traditional, it should be treated with great respect, and only altered after careful thought, and when one is certain that it *can* be improved: there is generally some very good reason for that which is customary.

Chair designed by Charles Spooner.

We must next think of the nature of the material, and the construction: they depend on one another. Furniture is generally, but not always, made of hard wood. Quite strong and beautiful furniture may be made of soft wood,

but the sizes of the parts (especially the thickness) and the shapes, must be quite different to those suitable for hard wood. It bruises easily, and is not so strong, so all sharp lines and arrises should be avoided, and the shapes should be large and soft. The hard woods, again, differ greatly from one another. These differences should be appreciated; they will suggest the sort of character that the furniture should have. For instance, think of a beautiful chair by Chippendale and I think you will see what I mean. The delicacy of the lines and subtle play of surface which are the chief characteristics, and, together with the proportion and spacing, make its charm and beauty, would be lost and spoiled by the larger grain and sinewy texture of oak, and the thing would look rather weak and finicky, whereas in mahogany it is at once strong and refined.

Some of the hard woods, beautiful in colour, figure, and texture, can only be used as veneer. These woods are of such a hard, close texture that the natural moisture cannot evaporate, except on the surface; as wood drys it also shrinks. When the outer surface drys and the bulk retains its moisture, this surface splits and exposes a new surface to the drying influences, the split then goes further, and so on. It is obvious that such wood cannot be used except when cut very thin, so that it may dry. Even when so cut some of these woods have such a twisted nature even the thin sheets will split. It can, however, be glued down on to a more manageable wood, and, if properly laid, seldom gives further trouble. It is a perfectly legitimate and right use of wood, provided it is used quite frankly and does not pretend to be solid wood—that is to say, it should be used as decoration. The prejudice that some have against veneer is, I think, due to a bad and improper use of it. A good deal of furniture has been, and, I fear, is still being made of very poor wood, just glued and nailed together and covered with veneer, which strengthens it, and looks like solid, hard wood. The veneer is unprotected at the angles and corners, and is often improperly laid. It gets chipped and peels off, exposes the fraud of the thing, and the owner of the furniture is disgusted, and sometimes feels that veneer is shoddy make-believe. I think it is a safe principle to surround veneer with solid wood, so that it is protected at the edges and cannot be bruised or chipped. All of the hard woods are heavy. Now most furniture for

houses must be movable, not only because the house generally belongs to one person, and the furniture in it to another, who happens to occupy it, but also that the place may be kept clean. It would, I think, be well if all big things like wardrobes and large cupboards were fixtures in the house,

Cabinet designed by Charles Spooner.

provided for when the house was built, with dust-tight doors and drawers. House cleaning would be easier, and, therefore, one would hope, better done.

In order that furniture may be as easily moved as possible, it is important to use the smallest pieces of wood consistent with strength. As it has to be moved often, it is subject to much strain. So it must be strongly constructed, not only by means of very close-fitting joints, but also

in the arrangement of the parts, so that they shall brace and stiffen one another, and yet not interfere in any way with the convenience of the thing. It is convenient to make furniture in parts, except, of course, small things. These different parts are generally described by the furniture maker as "carcasses." Now, there are two ways of making carcasses; one way is to make them of a framework of posts, or styles, and rails, and to fill the openings with panels, which may be described as a framed carcass. The other way is to use boards joined together to the required width, and then to dovetail them together at the angles, much as a box is made. This method may be described as a dovetailed carcass. Both these ways may be used in making one piece of furniture.

While we are thinking of construction I should like to say a word about the way that the back of a piece of furniture ought to be made, especially the back of a dovetailed carcass. Such a carcass wants bracing to stiffen it, but it is difficult to put braces without taking up valuable space. The whole of the inside must be left free for use as a cupboard or cabinet; the front will be closed with doors, so that at the most we can only have one narrow rail along the top, and this will not stiffen the thing much, so we must depend on the back. Of course, the best way would be to put diagonal braces across the corners, but it would be difficult and expensive to fill the spaces with panels. The only way, therefore, is to have wide horizontal rails, two or more, according to the height of the carcass, and as wide as may be, tenoned into, or, better still, dovetailed on to the backs of the upright ends. Of course the dovetails must be large, because the grain of the ends is running up or down, and there would be danger of it shearing off if the dovetails were small. The wider these rails are within reason, the stiffer will the carcass be. Muntings may be framed between these rails, and the spaces filled with thin panels. A very usual way of making a back is to frame it together, and screw it into a rebate cut in the sides to receive it, and to the top and bottom of the carcass. If it fits closely and is well screwed, it certainly does stiffen the carcass, and it is more easily, and, therefore, more quickly done. But the whole strength is dependent upon screws. Screws are very useful, but this is not the right way to use them: a screwed-in back is not nearly so strong or durable as that which I have described. The

back of first-rate furniture should always be so made. In a framed carcass the back rails would naturally be tenoned into the posts, or legs, with muntings and panels. When I speak of framed work, I mean, of course, work which is tenoned together. A very bad custom has grown up of late years, since wood-working machinery has come into such general use, of putting so-called framed work together entirely with dowels. A machine will cut off the wood very straight and square, and drill holes absolutely straight, and it will do this amazingly quickly. It is obviously very much cheaper to stick

Table, designed by Charles Spooner.

dowels into these holes, and glue the parts together, than to cut a close-fitting mortise and tenon joint, even when this is done by machinery. As long as the glue lasts no doubt the dowelled joint will hold together, but directly the glue perishes or its key breaks, the joint comes apart. Unfortunately this practice is not confined to cheap work. I think people who buy good furniture should require a guarantee that it is properly framed with mortise and tenon joints. I said that furniture is not made to be looked at, but for use, and this should always be borne in mind by those who make it. But its appearance is a very important matter, too. Some one has

said, "Everything that man makes ought to be beautiful—it is wrong if it is not." I think that is true. Now, unfortunately, it is very difficult to talk about beauty and to say why a thing is beautiful. There are great differences of taste. But it is a common fact that, in spite of widely different likes, people whose taste is at all cultivated do agree in rather a remarkable way about what is beautiful. They differ about the relative beauty of things. People like things for other reasons—association is a potent influence in forming one's likes and dislikes. Unless one thinks about beauty, and cares for it—and I think every one ought to—a man is a poorer creature for being indifferent to it—one is apt to like those things best which are most familiar. Familiarity, no doubt, influences every one's taste—it is not always easy to see the qualities of a type that is quite strange. I believe the best way to cultivate a sense of beauty, and good taste, is to look at all the beautiful things possible, and to pass by those that are not. Probably the most beautiful things are to be found in nature. A good deal of nature may be seen even in London, and nearly everybody now who cares can see something of the country, too. Every hedgerow and coppice is teeming with beauty all the year round. Then the museums and picture galleries are full of beautiful things that man has made, from Egyptian work five thousand years old, to those made the other day. And we have in London Westminster Abbey, one of the loveliest of man's work. I am sure that any one who cares can soon find out what is beautiful, and can cultivate his taste.

Now there are certain qualities that are essential. I have already mentioned three which we may conveniently include in the one word "fitness." A thing to be satisfactory in appearance must not only be fit for its purpose, and the material of which it is made, but look so. Another essential is good proportion. And here we are in difficulties again. There are no rules for good proportion. Some ingenious people have tried to make rules, so that we may all know for certain, but they cannot be relied upon. The rules of the five orders do give very satisfactory proportions within the narrow limits of the classical column and entablature. But they should not be considered as final or binding.

The only way to learn good proportion is by the study of fine examples, *e.g.*, the column and entablature of the

Temple of Diana at Ephesus, now set up in the British Museum, or Sir Christopher Wren's buildings, notably St Paul's Cathedral and St Stephen's Church, Walbrook, or Inigo Jones's Banqueting Hall in Whitehall.

Ornament, no doubt, does add to the interest and beauty of furniture, if it is suitable and good. It is not necessary and it is expensive, so it is quite out of place on inexpensive work, except in very small quantities. Of course, machine-made ornament is absolutely intolerable, and that

A Bed, designed by Charles Spooner.

workmanship which approaches to the machine standard is nearly as bad.

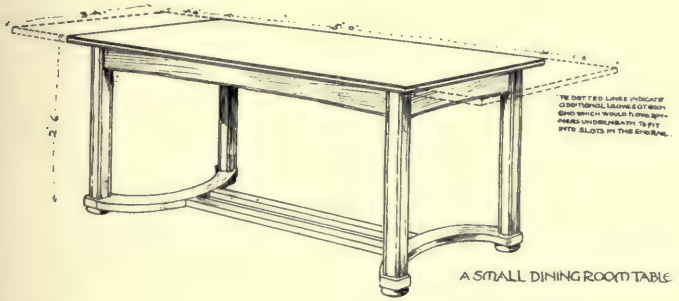
The kind of wood, as well as the size and character of the thing, will suggest how the ornament should be done—I mean whether it should be carved, inlaid, or painted. I think oak looks better carved than many woods, it seems to suit its sinewy texture. Carved ornament on furniture ought to be in low relief. I think a good deal might be done with linen-fold panelling. The linen-fold panel is really a moulded panel, playfully cut and enriched. The more it is treated in this way, and the less it is like folds of linen, the better it will look.

I am myself very fond of tracery as a decoration, and I think much might be done with it, especially in combination with foliage.

I think it is a pity that painting is not more used for furniture. If well varnished it is very durable, when shabby it can be repainted for a small sum of money, and it would not add much to cost to have a little painted ornament. When cost need not be severely limited, painted ornament may be, in the hands of an artist, possibly the most beautiful of all ornament. There are magnificent examples of painted chests, and of musical instruments decorated with painting in the South Kensington Museum, which are full of suggestion. And so are the painted scenes in the churches of Norfolk and Suffolk. But before I think of church furniture, there is one thing more about house furniture that is important—its relationship to the room. In designing furniture, one ought to think of it in daily use with all its surroundings in some room one knows or can imagine. I think it is a mistake to design furniture in suites. Good balance of size, shape, proportion, and colour will make different things look well together. The repetition of a feature or shape is unnecessary, and generally wearisome. Until modern times there was no difference in style or character between the furniture for a house and that for a church. That which we describe as style was the living tradition of the time, and the people were unconscious of it. It never occurred to them to copy the work of a past time. The first sign we see of this spirit was the revival of classical art in the fifteenth and sixteenth centuries. This revival was, however, no blind copying of classical examples, and in spite of many faults and absurdities, *e.g.*, pillars and pilasters stuck on the face of a building doing nothing, and lintels over arches, and constructive features used as mere ornament—in spite, I say, of these things, a living tradition of great refinement did develop in course of time, and lasted through the seventeenth and eighteenth centuries. But by the beginning of the nineteenth century, most of the refinement had gone, and little else remained.

During that century there were many revivals; the one that had the greatest effect was the Gothic revival. That is to say, people set themselves to deliberately copy the work of the twelfth to the fifteenth centuries. I am inclined to think that much good has come from this revival, and that more good

will come in the future. But many mistakes were made by the revivalists, and their work has fallen into some disrepute in consequence. I think, perhaps, the greatest mistake was the attempt to revive the letter of mediæval art rather than the spirit of it—to reproduce what had been done, rather than to learn the underlying principles, and so get on to a firm foundation. But many of these principles have been discovered and are known to-day. Mr Lethaby has, by his books, done as much as any one to make them known, and you have heard some of them only the other day from the lips of Mr Schultz and Mr Troup. An idea has grown up that what is described as ecclesiastical art must be quite different from anything else. This is, I think, a great mistake. Furniture for a church serves



Designed by Charles Spooner.

a different purpose to that for a home—generally it should be larger in scale, because of the size of the building. When colour is used it needs to be stronger, for the same reason. But there need be no other difference. If a thing is fit for its purpose and material, it will be right.

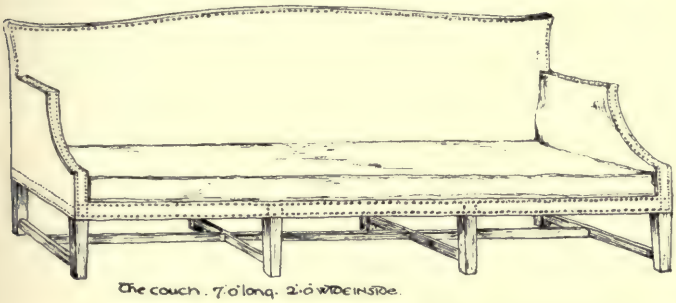
The first and most important thing in a church is the altar—indeed, it is one of the few *essential* things. Without an altar it is almost impossible to perform the central act of Christian worship. Now the altar itself should be rather plain. On Good Friday and Holy Saturday it should be stripped and bare—rich ornament is quite out of place at that time. At all other times it ought to be covered with a frontal and three linen cloths over the top. I believe myself that it ought always

to be of stone. Unfortunately, many of the chancellors of the English dioceses have a prejudice against stone, and require the altar to be made of wood. Whatever material is used, it should be the very best of its kind, although the design should be rather plain and restrained, and with little or no ornament, beyond a little moulding, and possibly the sacred monogram, or some such device; but it should be refined and handsome. It is important to make it as large as may be. The height is limited by the use of it. It should never be less than 3 ft. 3 in., or more than 3 ft. 6 in.; 3 ft. 4½ in. is about the best height for an altar. In width, 2 ft. 3 in. is as narrow as it should ever be; 3 ft. is best. It may be any length, but if less than 5 ft., it would be inconvenient. The longer it is, within reason, the better it will look. It should stand on three steps, with a foot space in front, at least 3 ft. wide, and two steps 1 ft. 6 in. wide each.

Every altar should have its cross and candlesticks, which may stand on the altar or upon a gradine. It should have at least one frontal. The chief, or high altar, if there is more than one, ought to have a set of frontals. The dorsal, or reredos, and the riddles are to give dignity of effect, and to protect the candles. They are not essential, but very desirable.

I do not know of a ciborium, or baldachino (the former is the right name), in this country in pre-Reformation times, so I suppose it is not included in the ornaments rubric. It is a fine, dignified thing, and I should like much to see it made legal. The largest piece of church furniture is the rood screen at the entrance to the chancel, sometimes called the chancel screen, and rightly when it does not bear a rood. Whatever is the origin of these screens, they are very beautiful things. In Somerset and Devon they were sometimes run right across the church below the arches of the nave arcade, from aisle to aisle, to form the chancel. There is an instance at Lapford in Devon. At Dunster, in Somerset, there was a small house of Benedictine monks who shared the church with the parish. Differences of opinion arose as to the rights of the monks on the one hand, and the parish on the other, in the church, and who was to take precedence in the ceremonies. These differences were submitted to an arbitrator, who settled that the monks were to have the eastern arm of the cruciform church with its aisles, and the parish the western arm and tower which stands at the intersection of the cross. The transepts were to be common to both monks and parish. In

order to form a chancel, the people at once set to work to put up a screen. It ran from the aisle wall on the north to that on the south, and is one of the well-known screens in the West of England, and a very beautiful thing. The screen carried a loft, which had a parapet on both sides, and was reached by a spiral stair on the south side. A large crucifix with figures of St Mary Virgin and St John on each side was fixed over the middle of the screen, and the whole thing was ornamented with colour and gold. The space above the loft to the roof was sometimes filled and painted. The rood and its accompanying figures were fixed to this filling, and a "last judgment" was painted upon it. Such a filling remains at Wenhaston, in Suffolk. I do not think this is a good plan, or



Designed by Charles Spooner.

a thing to be done nowadays. It cuts off the chancel from the church too much.

Slides of seven screens in Devon, Wales, Yorkshire, and Lincolnshire were here shown, and the lecturer drew attention to the difference of character between them. He showed two of the Norfolk screens—Southwold and Ranworth—both very famous, and both very much destroyed. Southwold must have been among the loveliest things in the country, before the destruction and robbery of parish churches and property in the days of Edward VI. and Elizabeth. The loft was torn off, and a little bit of the carved work nailed on to the screen by way of a finish. Try to imagine this screen with its loft, and a groined cove carrying it down on to the uprights, with a panelled parapet to the loft of delicate tracery work, all of

the most exquisitely refined and finished workmanship, and the whole richly coloured and gilt with figures painted in the panels. A little bit of the groined cove remains on the eastern side of the screen, and a good deal of the colouring and gilding. The figure painting on the panels of the base is of a very high order, and is either the work of Flemish painters, or of an Englishman who learned from them.

I have not spoken of pulpits, lecterns, fonts, and all the other articles of church furniture. Neither have I spoken of the so-called styles. If a man understands good design, and has developed his creative powers, if he is a master of proportion and spacing, if he thoroughly understands his material, and knows how to use it, he would have no difficulty in designing in any style, nor in learning its characteristics, and that quickly. And if he has not so developed his powers, he will not be able to design at all. So my advice is to study these things, understand them, appreciate them, spend your energies in learning how to make good and beautiful furniture, rather than in acquiring mere superficial knowledge of the details commonly used during any past period.

LECTURE XI.

DECORATIVE PLASTERWORK.

BY

LAURENCE A. TURNER

Ceiling of the Saloon, Coleshill House, Berks.
(From Belcher's *Later Renaissance Architecture in England.*)

DECORATIVE PLASTERWORK.

In speaking of decorative plasterwork I shall try to be as practical as possible in what I have to say, avoiding the dry bones of archæology as far as I can, only speaking about what I think will be useful and interesting to the beginner, and to the student who wants to pick up all the information he can about the way in which this craft is, and has been worked.

There is a good deal of confusion of terms used in describing the various processes in plasterwork, and I am glad to see that Mr Bankart, in his excellent book lately published on the "Art of the Plasterer," has put them clearly and concisely.

"Stucco-duro" is carbonate of lime mixed with sand, for the first two, or three, coats, the last coat being mixed with marble dust. This is the material used by the Italians for modelled work done *in situ*. The lime is ordinary lime such as is used for making mortar. The "quicklime" (as it is called, when limestone has been burnt in the kiln) is mixed with water, which causes it to dissolve; it is then kept in a moist state for a long time (the longer the better). After being kept in this condition for many months, even for many years, it loses its caustic qualities, and becomes what is technically known as "fat," and can be modelled almost as easily as clay. "Pargetry" is made of lime mixed with sand, or powdered tiles, and hair. "Plaster of Paris" is sulphate of lime, and is made from baked or boiled alabaster, which is then very finely ground, and which sets hard in a few minutes when mixed with water. "Fibrous plaster" is a plaster of Paris, which is strengthened by inserting wood laths and coarse canvas.

The earliest form of plaster known to exist in England was that of the dauber, in which wooden structures covered with wattles, had a coating of clay squeezed between the wattles and smeared over the face to keep out the weather.

This primitive method must have been in constant need of repair, for there are few materials that swell and shrink more than clay, according to the amount of water contained. Later on clay and sticks were used as a filling between the wood framings of which the houses were built (very much in the same way as lath and plaster partitions used to be filled with dry seaweed), which again was covered on both sides with lime plaster mixed with sand, or broken and pounded tiles. This method of making the exterior walls of a house was thoroughly sound and good, as it was weather-proof, and,

Northamptonshire Cottage, with Decorative Plaster. (The background of the pattern is painted.)

Drawn by T Raffles Davison.

moreover, capable of resisting extremes of temperature. The man who did the claywork to the walls was called a "dauber," and there are men to this day who still call themselves daubers.

As an instance of this, at Barsham Church, near Beccles, which was lately repaired under the direction of Mr F. C. Eden, the thatcher called himself "thatcher and dauber," as had his father and grandfather before him. That church had under the reed-thatch a thick coating of clay, and the house in which the thatcher and his father had lived was a timbered cottage with clay filling between the laths of the walls. Un-

fortunately for him the county council's by-laws do not allow him to practise his craft as dauber, so that he has to fall back entirely upon thatching for his means of livelihood. The only work he can get now as thatcher, is in repairing existing thatched roofs, or thatching hay stacks, for the building by-law again interferes with his craft, as it forbids the use of thatch where it has not been used before. A very artistic thatcher he was too, making many different and pretty patterns in the thatch without effort, the result, no doubt, of the continuity of a craft handed down from father to son for many generations of thatchers.

But I have digressed from the subject of plasterwork.

Traces are to be found in Saxon churches of their having been plastered externally, both from actual remnants, as well as from illustrated manuscripts, and there are Norman churches in which you can still see the way in which a simple form of decoration was used to finish off the thickness of the plastering on the soffits of the arches, as at Compton Church, near Guildford, and two other churches near by, namely, St Mary's, Guildford, and Puttenham. This old church of Compton is interesting, as it contains (what is, I believe, the oldest piece of joinery *in situ* existent) the Norman railing in the chapel over the sanctuary.

Plaster Panel from Old House at Canterbury.

(From Bankart's *Art of the Plasterer*.)

For plain plastering, the next great advance was the addition of hair with lime and sand, the outside work having modelled ornaments sometimes added. This method is called "Parge," or "Pargetry," and has been in use ever since. The lime-plaster work often had chopped hay instead of hair mixed with it, and pebbles, if used for rough cast, as is the method now.

Nearly all the ceilings up to the end of the seventeenth century were made of slaked lime mixed with sand, and were run or modelled *in situ*, the more elaborate parts of the ornament being cast in plaster of Paris and inserted or bedded on to the ceiling, or squeezed in lime plaster from moulds made of plaster or wood. By "squeezing," is meant that the

mould after being filled with plaster, and allowed to get partly set, is pressed against the ceiling, after a little plaster of Paris has been added to the back and held in position until the plaster of Paris has set; the mould is then taken away, leaving the cast sticking to the ceiling.

It was not until we come to the time of the ambitious Cardinal Wolsey, that the art of the plasterer brought itself into prominence, and this came about chiefly through his importation of Italian plasterers, who introduced new methods

Pargetting Panel from a Cottage at Burford.

Photographed by W. Galsworthy Davie.

and a more refined type of ornament; as is to be seen in the room at Hampton Court, called Wolsey's Closet. As you can see, it is sumptuous to the last degree. The enrichment is so lavishly used, that it is the plain moulded ribs that become the point of interest to which the eye is attracted. That this ceiling was put up by Cardinal Wolsey is evident from the fact that his motto is painted on the plaster frieze, which is of the same design as the ceiling, and as he died in 1530, we must place this some years earlier. This ceiling is not strictly plasterwork, for the ribs are made of wood, the bosses at the

intersection of the ribs are of cast-lead, the small leaves radiating from them being bent back to cover the angles, and according to Mr Gotch, the panels are made of "papier mâché," and, as he says in his book on "Early Renaissance Architecture," are screwed to the wood joists. I think it would have been more correct to say nailed, as they would not have used screws in those days.

In the work of Henry VIII.'s reign, the ceiling panels are small compared with what came later, the tendency being

"The Limes," Prittlewell, Essex (now demolished).

for them to get larger and larger as time went on. The ornament is small and cramped when compared with subsequent work.

The Italians worked in stucco-duro, and had quite a different standard and type of design, as a basis upon which they worked. The surrounding architecture in their own country was so very different from our Gothic buildings, that it is not fair to criticise their work, which was exotic here.

We must not forget that it is largely to them that our forefathers owed the stimulus to plaster decoration which now became so fashionable, and which produced a school of plaster-

work such as has its counterpart in no other country, Italy perhaps excepted, in the history of the world.

I do not think we Englishmen quite sufficiently appreciate this. There is but little abroad to compare with our English plasterwork, excepting in the very richest of buildings, and what there is, is of a very different type from our domestic plasterwork. It is the domestic plaster decoration of which we should be so justly proud, which is still to be found scattered over the whole of the United Kingdom, but which is so often ruthlessly thrown into the rubbish cart, to make room for some modern piece of engineering. Do not let us ever forget that this old plasterwork is a most interesting and precious legacy left to us by our forbears, which should be treasured and treated with the greatest respect and care. It was only after the English plasterer had digested what the Italian had fed him with that he produced such a wealth of work, so full of strength and individuality, and so varied and ingenious in design.

But though the imported Italian workman gave stimulus to the craft, it must also be remembered that it was but the further development of a true native tradition. The English plasterers assimilated their neighbours' work, but when they designed their own, although they made full use of what they had seen, yet they produced something entirely fresh and new. Would that we could say as much of ourselves! Yet we are on the improve, I venture to think. There is more individuality to be seen now than there was in decorative plastering ten years ago. We are adapting modern methods to produce work that is not mere copying, but which has some individuality and thought, and a right feeling for the use of the material.

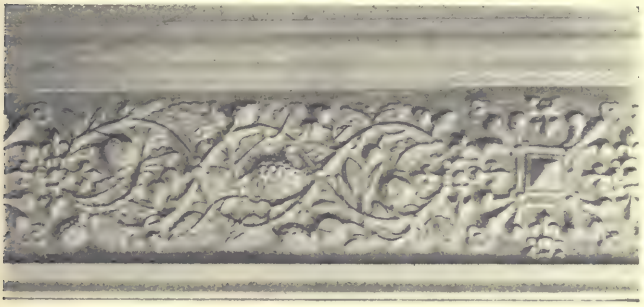
Here I must make mention of a very wonderful creation that took place in the history of plasterwork in Henry VIII.'s reign, namely, the Palace of Nonsuch, which was built on the hills between Epsom and Cheam, about the year 1538. With this and two other exceptions, I will only refer to such work as still exists, whose beauty we may see with our own eyes.

These following passages I have taken from Mr Bankart's book on the "Art of the Plasterer," and Mr Millar's "Plastering." A German traveller named Hertzner, who visited the palace in Elizabeth's time, says: "It was built with an excess

of magnificence and elegance even to ostentation. One would imagine everything that architecture can perform to have been employed on this one work. There are everywhere so many statues which seem to breathe, so many miracles of consummate art, so many casts that rival even the perfection of Roman antiquity, that it may well claim to justify its name of Nonsuch, being without an equal, or as the poet sings—

> 'This which no equal has in Art or Fame
> Britons deservedly do Nonsuch name.'"

And years later, Evelyn says: "I took an exact view of the



Frieze at Charlton House.

Photographed by W. Galsworthy Davie.

plaster statues and bas-relievos inserted between the timbers and puncheons of the outside walls of the court. I much admired how it had lasted so well and entire from the time of Henry VIII. exposed as they are to the air, and pity it is they are not taken out and placed in some dry place. A gallery would much become them. They are mezzo-relievos the size of life. The story is of heathen gods, emblems, and compartments."

Henry VIII. died in 1547, before the palace was completed. Henry, Earl of Arundel, the instigator of this work, and director of art to the king, purchased it from Queen Mary, and "for

love he bare to his old maister . . . did not leave till he had fully finished it."

Nonsuch Palace was frequently visited by Queen Elizabeth, but not so by James I.

During Charles I.'s reign it was neglected, and then sacked and pillaged by Cromwell, given away by Charles II. to a mistress, and by her sold. In James II.'s reign Peter le Neve, in his copy of Aubrey's "Surrey," says, when he saw it, that it was "done with plasterwork made of rye dough very costly." This was probably rye-meal mixed with plaster, as the gluten would retard the setting, making the admixture work freely, and eventually become hard.

Pepys saw the ruins of the palace after the Parliamentary wars. When on 21st September 1665 the Great Plague drove the Exchequer to seek refuge in its ruins, he left this record of his impressions: "All the house on the outside is filled with figures or stories and good paintings of Rubens' or Holbein's doing, and one great thing is that most of the house is covered—I mean the posts and quarters of the walls—with lead, gilded."

In Elizabeth's reign, we have a period of great activity in the building of such houses as Haddon, Loseley (1562), Burley, Hardwick, Bramshill, Crewe, Littlecote, Chatsworth, and very many others, both large and small, such as the Star and Garter Hotel at Yarmouth, all of which are still existing. Though often sadly mauled, and shorn of their beauty, they still have enough left of the plasterers' work to show how rich a harvest of plaster decoration was reaped, both in quantity and quality, during the long and peaceful summer of Queen Elizabeth's reign.

Mr Bankart has lent me some illustrations of Hardwick, photographed at considerable risk, the ruins being in a dangerous condition, and I will quote what he says: "The old hall at Hardwick, now in ruins, was being built from 1567 to 1590, but was never finished. The modelling has been assigned to Charles Williams, who worked at Longleat, Wilts, who professed to do work 'in the Italian fashion.'

"It can be proved that the stucco of the earliest frieze was composed of the limestone of the district, 'air-slaked' for a considerable period, and mixed with a fine, sharp, local grit. It is fine, extremely hard, and difficult to break. As a test of its durability, it has been exposed to the weather ever since its execution."

No doubt you are already acquainted with the photographs of most of the ceilings shown at this lecture, if not with the ceilings themselves, but they need no apology for bringing them before you again: they never pall, they are all so full of spirit and ingenious device, they give such a happy rendering in architectural language of flowers, animals, and birds, which are "for ever piping songs for ever new."

Pargetting at Steventon, Berks.

In Powis Castle Long Gallery, 1592, is an interesting ceiling in which the ribs cross over one another, and which in reality do not make it appear at all cumbersome. The work in this castle is somewhat rude, but yet admirably adapted to the building, which has walls in some places ten feet thick. It was an important stronghold on the Welsh borders at Welshpool.

During the reigns of James I. and Charles I., roughly a period of fifty years from Elizabeth's death, the work of the plasterer continues to flourish and abound, so much so that it is difficult to make a selection, there is so much to choose from. There was elaborate plaster decoration being done about this time at Knole, Audley End, Broughton, and numberless other houses over the whole country.

Knole Long Gallery, 1605, is perhaps one of the best-known ceilings in the country; it is beautifully modelled, the

enrichments being cast and inserted; but I think the design does not stand in the first rank. The repetition of curved lines, which wriggle from end to end of this long gallery, is monotonous and restless, some straight lines are wanted to steady it. This method of inserting cast ornament is a poor one; you can never hide the joints, however carefully done; they are visible in this ceiling. If part of the ceiling ornament is to be cast and applied, it should be obviously so, as you will see at Sir Paul Pindar's house, or else disguised so that the jointing is quite invisible.

With one or two notable exceptions, the tendency is a deterioration from the high standard of excellency of the earlier work, about the end of Elizabeth's reign. I think the type is pretty well played out; it is stale, and poor, and thin. It tends to represent the sharpness of wood-carving and apes designs for wood.

At Benthall, Shropshire, the panels on the wood chimney-piece have a cartouche carved in each, and precisely the same design is used again in the plaster ceiling. There must be a limit to the variations of one style, and new ideas and principles of design must be brought into play, if a healthy vitality is to be maintained. About this period a new development takes place in the general disposition and in the details of ceilings.

Towards the end of Inigo Jones' life (he practised roughly from 1600 to 1650), he introduced a new treatment, and the work becomes more architectural and on a larger scale. In the late work of Inigo Jones, we find the ceiling rib broadened out and many additional members added to the mouldings, as well as a wreath, generally of fruit and flowers, applied to the flat soffit. The large coved cornice often becomes a strong feature, as well as the placing of a large recessed panel in the centre, forming the chief feature of the ceiling design. Coles-hill saloon, Berks., designed by Inigo Jones, is an average specimen of his work. It was built about 1650. Ashburnham House, Little Dean's Yard, Westminster, was also designed by Inigo Jones, but carried out by his pupil Webb.

This Renaissance type of work soon spread itself over the country, but at the same time the older type of design is to be found being used at a very much later period; tradition died hard, and consequently it is difficult to date some work, unless it is actually known from records of when and how it was done.

The next figure that stands out as clearly defined in his

Ceiling at "Westbrook," Godalming, by Laurence A. Turner.

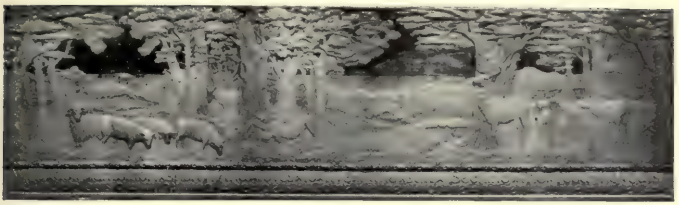
own period, as Michael Angelo does in his, is that of Sir Christopher Wren. The Fire of London, which gave him such opportunities to display his great ingenuity and talent as an architect in this our city, marks also a further development in the designing of plaster ceilings. He introduced a freer treatment, but, at the same time, keeping it thoroughly architectural. There is much of his work to be seen in London. The New River Company's Board-room ceiling is a good specimen. It has been criticised as being too heavy for the size of the room. I was much surprised when I measured it to find how strong the modelling was, viz., about four and a half inches on the spandrels, and yet how well the work kept its place.

It is very important that the work of the modeller be kept in place by architectural boundaries, as it was in the ceilings designed by Wren, but it was not so in all of Grinling Gibbons' work. Moreover, the modeller tries to emulate the work of the carver, and, consequently, from this date the quality of softness and ductability, that should be the great charm of plasterwork, begins to disappear. The work becomes more and more undercut, and to my mind unsuitable to the material. With the multiplicity of mouldings, and the exactitude of Renaissance architecture, there must of necessity be less free modelling on the plain surfaces and mouldings than was the case in earlier work, so that for effect it must depend wholly on design and strong contrast of light and shade, and not upon texture and delicate modelling, which is what I delight to see in plaster decoration.

I now show you some more pargework which was done about Wren's time. Prittlewell, a very charming example of the plasterer's craft, but which has now been chucked on to the rubbish cart, amongst the other debris of the house. Sparrow's House, at Ipswich, another good piece of pargework executed about 1670.

Wren's work is followed by that of Sir John Vanbrugh, who built Blenheim, and Castle Howard.

James Gibb built the Senate House, Cambridge, 1772, and the Radcliffe Library, Oxford, in which, you will notice, the work is getting still more rococo. The architectural quality disappears, and quasi-ornament composed of squirming curves, which have been aped from French work, takes the



Frieze, by Laurence A. Turner.

place of the dignified forms that are to be found in Wren's designs. The best of this type of ornamentation has something to be said for it when it is used with restraint, as it is at 16 Bishopsgate Street. It is also well adapted to small rooms; there are many examples to be found in the neighbourhood of Bloomsbury.

The next period is that in which the brothers Robert and James Adam were most productive, between the years 1760 and 1790. They did put a restraining hand upon the modeller, and they got a certain delicacy of effect by keeping the relief very low, and using a large amount of plain ground to the amount of ornament. But it is no longer worthy of the title "plasterwork," neither is it plaster, for most of it is "compo," the same material as is used for ornamentation of picture-frames, and which is produced by pressing a doughy substance made plastic by moisture and heat into wooden moulds under great pressure. The impressions are then placed in position whilst pliable. In truth it is a reproduction of wood-carving. These gentlemen were followed by George Richardson, who followed on much the same lines, and plasterwork as an art was dead and buried. Gordon House, 1800, is a specimen of how not to do it.

I have given you a short retrospect of the history of English plasterwork, a large subject to condense into one evening's discussion. And now let me say a word or two about present-day work. What was the cause of this craft falling to such a low level as it did during most of the nineteenth century?

Was it not because the man who modelled the orna-

ment was not a plasterer, and that he was copying a style which for him had no tradition, and the plasterer was purely a mechanic whose sole object was to be as exact and mathematically correct as possible?

The use of "fibrous plaster," which was invented about fifty years ago, is a method which necessitates all the work being cast, consequently it is the modeller who becomes solely responsible for the artistic properties of the work. Some work is better and cheaper modelled *in situ*, but in most cases this method is quite prohibitive in cost, in these days, when labour is so much more highly paid than in Wren's time.

There is so much to be said about methods of production

A Coved Cornice, by Laurence A. Turner.

that it is quite hopeless to even touch upon this side of the subject, but I am very certain of this, that it is only to be learnt by the system of apprenticeship. I feel very strongly about this. It is very well to append evening classes to daily instruction given in the workshop, but it is not possible to become proficient at any craft in any school or college which exists only as a teaching centre. Without experience acquired on work carried on for actual use, no one will become worth his salt, however many diplomas and medals he may have won on work made for the purpose of teaching. Art is long, and we are always trying to hide the fact.

In Charles II.'s reign a charter was granted which forbade any person to carry on the art of plasterer without having been apprenticed for seven years. Search days were annually appointed up to 1832, and fines inflicted for using bad materials and bad workmanship. This, I take it, would include the modeller in those days, as there would not be the distinction there is now.

There is no fault to be found with the plasterer who works in fibrous plaster, but for the man who works in lime plaster there is a great deal to learn. He is the man who should be taught to model, and the modeller should be taught to plaster. Above all it is the modeller who wants stirring up. Get him to shake off his old ideas of copying old forms quite unsuited to the material. Get him to appreciate what the beauty of plaster modelling should be, and at once we have a living craft. There is ample scope for him. Surely we are not so lethargic that we cannot think out new ways for treating designs for plaster decoration. It is quite possible to produce work which will have a character marking its date as distinctly as does that of our forefathers at the different periods of history. If you are asked to make a ribbed ceiling after some old pattern, by all means do it, but do not make it look like cast iron.

By Laurence A. Turner.

I do hope and believe that we have got a young and healthy decorative plasterer growing up amongst us. Let us do our best to bring him up in the way he should go, so that he should soon be strong to labour, that there be no decay, no leading into captivity, and no complaining in our streets. Happy are the people that are in such a case.

LECTURE XII.

EXTERNAL LEADWORK.

BY

F. W. TROUP, F.R.I.B.A.

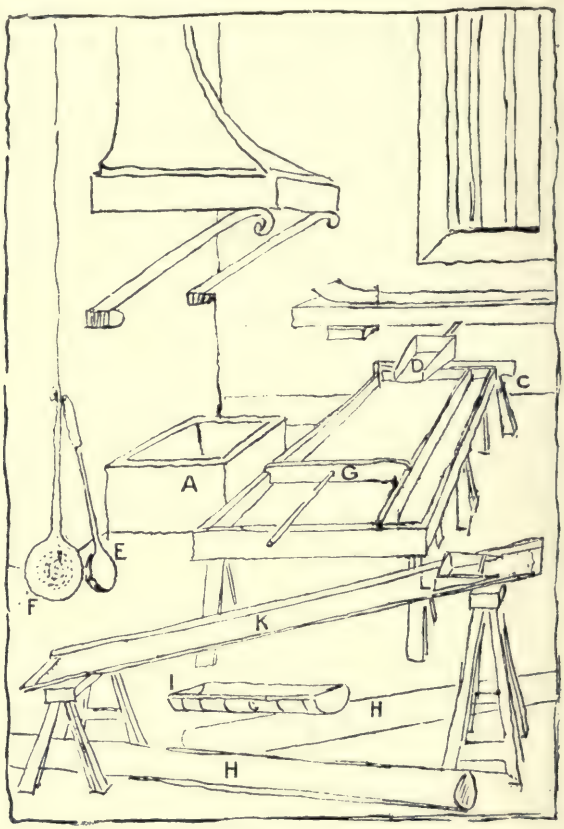
Old Cistern from Whitehall Gardens

Photographed by Horace Dan.

EXTERNAL LEADWORK.

I HAVE found it somewhat difficult to fix a title for the subject of this paper. I have called it "External Leadwork," which is, on the whole, the best, excluding as it does all that branch, once quite subsidiary, but now the backbone of the plumber's business, known as sanitary work. The terms and the division into internal and external plumberwork are, of course, perfectly understood by architects and members of the plumbing craft, but to the layman much of what is technically "internal" is, unfortunately, visible externally, and to him the division might convey more meaning if the words "sightly" and "unsightly" leadwork were used. In modern domestic buildings the chief, or, perhaps, only display of leadwork is, I am afraid, physically external, and usually also unsightly. There is no need to dwell unduly on that aspect of our theme. But I must refer to it because it bears on my subject somewhat adversely. The care, accuracy, and precision necessary and desirable in all the sanitary work which now absorbs so much of the modern plumber's time and study, has not had an influence for good in the other branch of his craft connected with the roofing of buildings and the decorative and ornamental use of lead.

This influence has been bad not merely on the plumber and his methods of work, but lead itself has lost caste, and from being a material of which men used to be proud and delight to possess, or were eager to make some sacrifice in order to secure as a covering material for their shrines and temples, lead has dropped from this position to one of pure utilitarianism. It is regarded by some in the same light as we are accustomed to find attaching to galvanised iron. In the course of my practice it has been said to me: "What! *lead!* goodness, don't let's have any lead showing, whatever you do." What are the causes of this perverted view? Associations, as I have suggested, have a good deal to do with this flavour of false shame for our material. Ignorance, or perhaps it would be



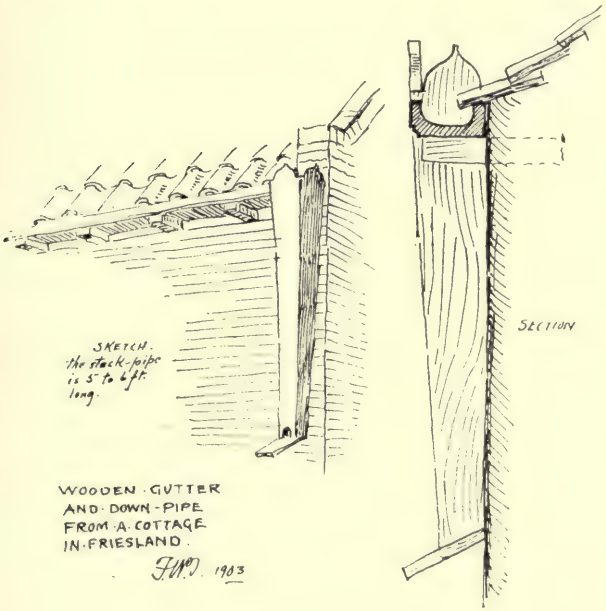
Illustrations of Plumbing Implements, from "Principes des Architecture," Felibien, Paris, 1676.

(A) Trough for lead melting; (B) frame for sheet-lead casting; (C) trestle to carry head pan; (D) iron head pan for molten lead; (E) ladle; (F) perforated ladle; (G) strike; (H) core for pipe casting; (I) trough; (K) frame covered with linen for casting thin sheets; (L) strike.

less cruel and more true to say "a little knowledge," has something to do with it. The scientific training of the plumber,

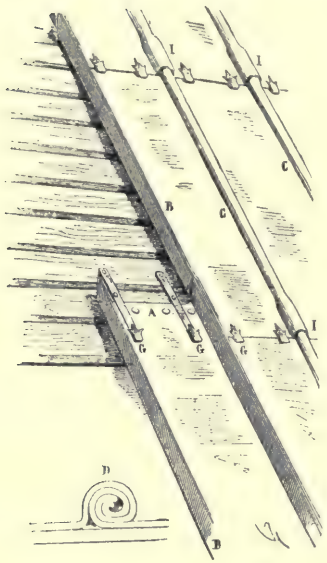
weaning him from the more attractive side of his craft, has also had to do with it, and further causes for "the decline and fall" will appear, as I describe to you the old as compared with the modern way of preparing the metal and covering buildings with lead.

Let us take the case of cast sheet-lead and compare it with milled or rolled sheet—the material that is almost uni-



Sketch by F. W. Troup.

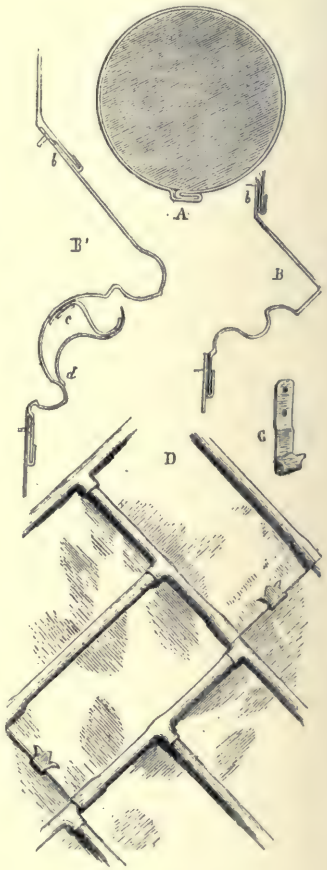
versally used for roof work now. Formerly all lead roofs were made of sheets cast on a smooth sand bed specially prepared for each casting. When the metal had cooled, the sheet was simply trimmed and laid on the roof. About the time of Christopher Wren the new process of rolling out lead into thin sheets was invented, and ever since its use has gradually increased. Neither Wren nor the Plumbers' Company of



Mediæval Method of Laying Cathedral Roof.

in sheets by the old method in the crypts of the church, on a very large casting frame 17 feet long by some 6 feet wide.

It requires a good deal of skill to cast evenly sheets of lead as low in weight as 6 lbs. per square foot, whereas milled lead can be made in any thickness down to the lead paper for lining tea-chests. The economy which this even quality and extreme thinness of the sheets made possible had much to do with the introduction of London encouraged the new departure much, and to this day the leadwork of the roof of St Paul's Cathedral and all its subsidiary buildings is cast



Mediæval Working in Lead.

the milled lead, but it is not a sufficient reason for using it for better class buildings when substantial lead should be used,

Queen Charlotte, Queen Square, London, W.C.
(From *English Leadwork*, by permission of Lawrence Weaver, F.S.A.)

and where, moreover, we can reasonably afford to consider appearance as well as durability.

It is said by some plumbers that sheets cast in this way are harder and more difficult to work. That there is an initial

crystalline hardness in the unbent and unrolled sheet is, I believe, true; and this is an advantage in many ways for roof work. But it is a mistake to say that it cannot be bossed and wrought up just as well as milled lead. If the metal used is impure, then certainly the lead cannot so readily be wrought—but that is the result of carelessness in the melting-pot, and may exist in milled sheet as well as cast.

The other objection which used to be urged (at the time of the introduction of milled lead) against cast sheet was that cracks and holes sometimes occurred in it. This, however, applied chiefly to the thinner sheets, which are naturally more difficult to cast. There I think milled lead is certainly safer, and for sheets weighing 6 lbs. per square foot, or thinner stuff, I should say use the rolled metal, and make the best you can of it.

It must not be thought that I am dwelling unnecessarily on this part of the subject. I must speak to plumbers and architects first, and in doing so I wish to distinguish clearly between the two kinds of sheet-lead—that which is cast, as I shall presently describe, and the modern milled sheet, which is made by rolling out between steel rollers. At page 190 is given a reproduction of an old engraving of a plumber's shop in which figures the casting-frame with other implements of his trade. This is from a French book on the building crafts written by Felibien, dating 1676. You will see that the casting-frame is like a long table, with a 4-inch rail all round. On this is laid the casting-sand—ordinary sharp building sand does very well—spread evenly over the surface about 2½ inches in thickness. It must be damp, and it is best to keep it permanently damp. Occasionally it will have to be sprinkled with a watering-can, but it must be carefully mixed and well tempered, and should be very much the consistency of snow when it is just right for snowballing. A special strike is prepared with a handle projecting at each end, or with a long, single handle, as in the old print, and with this the sand is roughly smoothed down, and then carefully dumped all over to give a fairly firm surface. The surface is now struck off as close down as the strike will allow, and finally it is polished to an even face with a float, which is best made of copper, with the edges rounded off, to prevent them catching in the surface of the sand. The lead having been melted in the lead boiler during or before this process, is

now ladled out into the head-pan, shown like a large, deep shovel at the head of the frame, the body resting on a trestle,

Redcourt, Haslemere.

Ernest Newton, Architect.

(From *English Leadwork*, by permission of Lawrence Weaver, F.S.A.)

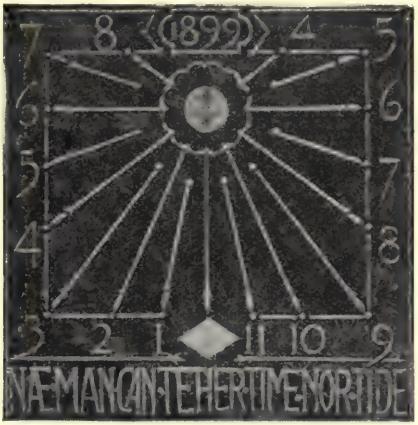
with its lip on the top edge of the casting-frame. The lower end of the sand bed is cut or sloped sharply off to allow the superfluous metal to run clean away into a pot, or elsewhere,

out of the way. Before tipping in the lead the strike is brought close up to the head-pan and twisted slightly, so as to raise it off the surface of the sand, and yet close enough to help the metal to spread over the surface and form an even sheet as it runs down. Over the handles of the strike are slipped two flat rings, to raise it off the surface of the sand by just the thickness of the sheet of lead which is to be cast. On most frames the casting is a three-handed job—one man stands at each end of the strike ready for the metal, the third man gradually, but without hesitation, tilts and empties the molten lead from the head-pan on to the frame. At a signal from the caster, the strike is rapidly and evenly run with firm hands

Lead Sundial with Tinned Face.
F. W. Troup, Architect.

the full length of the frame, sweeping off all superfluous metal over the end of the bed. As the sheet immediately begins to cool and shrink, one man seizes a drawknife and cuts off the lower end while the metal is still soft; but for this the sheet might, in contracting, draw itself in two halves. It is then rolled up, a stake run through it, and lifted off out of the way for the next sheet, which means making up the sand bed as before.

If the sand is too dry it adheres to the underside of the sheet and makes it rough and unpleasant; if too wet the lead runs over it like mercury and will not hold together. If the sand is too loamy or close, or if the boards under it are not open enough, the sheet blows up in a large bubble which the strike knocks off, and so spoils the sheet. If the lead is too hot it gets what is called sand-burnt on the underside; if too cold, the sheet is streaky, with marks like joints, and I have seen a sheet spoiled by a small piece of unmolten lead having been run on to the bed. It would take too long to tell you how to know all the right degrees of heat, dampness, and so forth, but the troubles are not really so difficult to overcome as they sound on paper. The first sheet I ever cast, with my friend, the late Mr William Dodds, in a basement in Whitechapel, was quite a good one, and we made of it a good sound rain-water head. The surface of the casting-bed is usually laid with a very slight slope, but for short sheets dead level is all right. The boards forming the bed of the frame should have a number of holes bored, especially near the head, to enable the steam to escape. The edges of the



Face of the Sundial Illustrated Opposite.

rails should be greased just before casting the sheet. The lead must be pure. If old lead is used there must not be a trace of zinc, and as little solder as possible, and it is always advisable to put in from five to ten per cent. of pure pig lead,

Two Views of a Lead Font, designed by Arthur Grove.

if it is a case of recasting old lead roofs. Of course, in casting a sheet of lead, whatever the size of the frame, the head-pan must contain, and you must run on, twice as much molten lead as the sheet actually requires.

It hardly needs explanation to show how readily the surface of the sand bed, prepared as I have described, lends itself to decoration. Dates, letters, and patterns of all kinds can be pressed into it before the molten lead is flooded over its surface. The only thing to guard against is spending too

A Lead Rain-water Head at Witley, designed by F. W. Troup.

much time over the process, and allowing the surface of the sand to get dry. This must be avoided, all the more so as the ornamental side is the one to be exposed, and it should, therefore, be kept clean and smooth. The frontispiece to this paper is a good example of open casting on the sand bed.

The illustration from the article on Plumberwork in Viollet-le-Duc (p. 192) shows how the sheets of lead were laid on the great cathedral roofs in the Middle Ages, and you must suppose these sheets to weigh 10 to 12 lbs. per square foot—meant to last 500 to 1,000 years, but so laid that any one of them could be replaced next day without greatly disturbing its neighbours. All leadwork on roofs and spires was laid in this way. Any part showing signs of giving way from whatever cause, could be removed and replaced, and the work made good again. This is essential in a covering protective material like lead. You will notice the hooks supporting the lower

Lead Pot, designed by Prof. W. R. Lethaby.

slope of each sheet. These hooks were securely nailed to the woodwork above and came down over the head of the next sheet below, allowing of a 6-inch or 8-inch lap. In laying a sheet, its lower end was slipped into the hooks, and it was secured at the top with large nails, so that each sheet hung from the top and was caught by the hooks below. The latter also from their shape prevented the wind from getting below and lifting the leadwork. At the sides the two edges of adjoining sheets stand up vertically when first laid. These are now bent over together and rolled into an open roll, forming a more efficient and waterproof affair than the modern wooden-cored rolls.

Note also that the boards are not close together, but have a space of 1 inch or 1½ inches between. This could only be done with stout sheets of lead, but it is better for the timber, and, as always in mediæval work, is economical exactly where it ought to be, and not where it ought not to be.

The second illustration from the same article in Viollet-le-Duc (p. 192) shows another favourite way of laying lead roofs, although in this case wood cores to the rolls were often used because they formed an additional support to the lead, especially on steep surfaces like spires.

It seems almost unnecessary to refer to the use of lead for rain-water gutters, pipes, and pipe-heads. As soon as the picturesque gargoyle was voted a nuisance, the lead rain-water head appeared on the scene to catch the water from the shortened gargoyle and lead it quietly and safely to the ground in lengths of lead pipes, fastened to the walls very often with ornamented bands and straps. Except for the cottage wooden spouts and occasionally stone down-pipes, lead was almost the only material available for this purpose until the iron foundries in this country developed the casting of iron pipes so far as to be able to supplant the use of lead for all except the very best buildings. On the Continent zinc has ousted lead in much the same way. All three metals are almost equally good, *if properly used*, but lead holds its own very easily as the superior material, because, for this purpose, it cannot be used "on the cheap" Zinc and iron both suffer from its being possible to use them too thin to last, but just thick enough to hang on the walls.

There is somewhat of a craze at present for old lead statues for gardens, and very pleasant objects some of them make surrounded by the greenery of a clipt hedge or in an avenue of trees. They can, however, only be regarded as a cheaper substitute for bronze. The metal is not at all suited for this kind of work, requiring as it does so much and such careful support to prevent the figures becoming distorted. Lead is a very soft and ductile material, and this quality should be fully recognised when using it. In the Middle Ages leaden figures were either of carved wood over which the lead sheets were beaten and fixed in sections, or a framework of iron was made and the lead hung on it almost like clothes, and tacked together at intervals with solder.

Leadwork was very often decorated with colour and gold. The metal forms an ideal ground for decoration, but advantage

was sometimes taken of the possibility of tinning the surface of the lead and then glazing over the brighter tin with transparent colours. This gave a brilliant metallic lustre that, when new, almost rivalled the colours of stained glass. The spire of Chalons-sur-Marne was covered with figures and decoration of

A Lead Sundial for a Wall, designed by F. W. Troup.

this nature, and the traces are still visible there, and on the *flèche* of Amiens.

Of the remaining illustrations one shows a bay window and gutter designed by Mr Ernest Newton, evidently cast in the sand and partly colour decorated. The lead pot by Professor Lethaby was modelled by him in gesso, and is, I believe, cast

by the *cire perdue* process. The horizontal sundial was made as a demonstration in leadworking at an evening class, and is formed on an iron framework, the letters and figures of the dial being run on the surface with tin as referred to above. The rain-water head at Witley was made for me by the late Mr William Dodds. Except the cable bands, it is all plain cast sheet, wrought, and cut afterwards. The wall sundial on the other hand is cast in the sand in an open mould, as was the spiral strip of lead forming the stem of the pedestal dial described above. The font, designed and modelled by Mr Arthur Grove, was cast in an open mould on the flat, and bent round and soldered up afterwards. This was the usual way in making both fonts and cisterns, and, so far as I know, all the old fonts in England have been made in this way. This is, in fact, one of the chief characteristics of the metal—that it can be cast in the simplest and most elementary way, and afterwards bent or beaten up to its final shape.

Panel of the Seasons: Autumn.

LECTURE XIII.

DECORATIVE IRONWORK.

BY

J. STARKIE GARDNER.

An Old Iron Grille.

DECORATIVE IRONWORK.

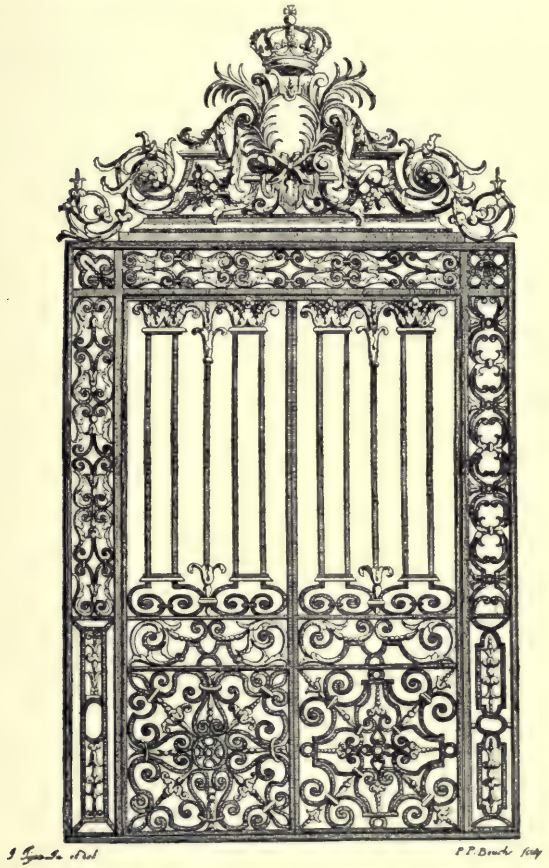
Wood-working and metal-working are sister crafts, but they have often disagreed, as sisters will. This was, perhaps, inevitable, for no two crafts could be more dissimilar or find less common grounds than the smith's and carpenter's. The one dreads fire, and the other lives by it. One works cleanly and neatly, and only litters the fragrant chips and shavings which fall around: the other works with hurry and din, amidst a sputter of sparks, for he must strike while the iron is hot. The carpenter is independent of the ironworker except for his cutting and drilling tools and glue pot, with an assortment of screws and tacks, all procurable from the nearest ironmonger. Hinges, locks, and bolts, if used, are mortised out of sight. This, no doubt, is because the woodworker appreciates the smooth beauty, the graining and texture and colour of the various woods he works with. The markings tell their tale of life, of struggle and growth, of summers and winters, and droughts and winds, of nature's endless adaptations of means to ends. The properties and texture of every species differ; resemblances are but superficial. People have, in every age, been fascinated by the exquisite marblings of wood, and Pliny records that the wealthy Roman senators paid as much as £9,000, or even £10,000, for tables made of the bole wood of the *Atlas callitris*. In its wonderful mottlings they traced resemblances to the markings of tiger and panther, the eyes of the peacock's tail, or dense masses of grain, in colour like wine mixed with honey. Our ancestors prized highly the bole of the maple, when intricately marbled and yellow as wax, which they fashioned into very precious mazer bowls, mounted in solid gold, set with enamels and gems. To apply smith's work to such materials as these seems wholly incongruous.

The ironworker and the woodworker have indeed very different boats to sail. In the struggle for existence the smith

has continuously encroached on the carpenter's domain. If the smith produced iron chests and bedsteads, iron casements, iron doors and gates, screens and palings, it meant so much work taken from the carpenter. But such things were only the shadows of coming events, and trifling, compared to the inroads of the modern engineer, who has successively annexed shipbuilding, piers, jetties, bridges, roofs, conservatories, railway stations, shop-fronts, temporary halls, churches, huts, and shelters. Does this rising iron age mean the end of the golden age for the sister craft, or only the palliative of an otherwise imminent timber famine? Why the engineer alone among constructors refuses any concessions to lines of beauty remains a mystery. Money was not stinted on the Forth Bridge, and there is so ample a margin of safety that it is seemingly no more affected by the passage of a train than is a tree's branch by a crawling caterpillar; yet its brute force in forbidding lines, as seen, for instance, from Hopetoun House, mars one of the fairest landscapes in Scotland. Now the dwelling-house—which has hitherto found the carpenter so much employment (for, whether its exterior be of half-timber, stone, or brick, its interior must be largely of wood), and with which the smith need hardly have had more to do than with a Swiss chalet—is threatened by the engineer's ferro-concrete constructions, with walls, roof, floors, partitions, stairs, and windows of the same material. These cube out cheaply, and are reckoned fireproof, and threaten a very serious inroad on the carpenter's *métier*. The worker in wood may think that for ages the world got on very well without the engineer, and for some he has tended to make the battle of life harder than it need have been.

In the past the carpenter carved and decorated his own work, requiring no embellishments from the smith. The smith, on the other hand, merely regarded wood as a support for his well-forged scrolls or diapers, while preferring to make his doors or chests entirely of iron. Each affected a fine independence of the other's craft. The smith probably in early mediæval times had the best start, when metal-working was the relaxation of saints and kings, and no other materials were so richly decorated. In those days iron was produced in small blooms, weighing but a few hundredweights. The smith cut off pieces, and beat and hammered them out while hot into the shapes he required, and then welded them

together to form his hinge or handle; the front face was chiselled and scored with lines forming geometric patterns,



A Design for Gates by Jean Tijou.

and the extremities were, perhaps, worked up into some small snakes' or dragons' heads. Grilles of iron, not introduced

before the eleventh century, were of similarly rich and involved scroll or geometric patterns, which were more or less common to Western Europe. In the days of Edward I. stamps, or dies, were first introduced, which could be impressed on the hot iron as a seal is in wax. Leaves, flowers, and portions of reeded stems in relief were sunk, like intaglios, into the expanded ends by steel punches, and these were impressed on the surface of the iron, while heated to a plastic state, by blows of the hammer. The effect produced was that of rich moulding in relief, somewhat assimilating in effect to cast iron, but retaining the properties of wrought iron. Though the possibility of heating iron till it liquefied and could be poured into moulds, was known to the Greeks, it remained unknown in Western Europe till the time of Edward III. Great use was made of these stampings for a time. The richly worked surfaces of the iron in relief, and the intricate designs into which it was wrought had a magnificent effect when gilded and laid over blue or scarlet backgrounds. We have no finer forging in England than the Eleanor Grille, but the doors of Notre Dame, in Paris, present an amazing *tour de force*. After these, smithing presents little further interest for a time. It seems that, like the Mexican agaves, smithing had blossomed forth in a gigantic effort of inflorescence, and expired.

About a century later the vertical iron palisading, known as railing, was originated in England. It came about in this way. Edward I. not only patronised smith-craft, but the other metal crafts as well. The beautiful effigies in gilded brass of his father, Henry III., and of Queen Eleanor, at Westminster, are familiar to all. Circumstances, perhaps, prevented such monuments being put up to himself or his son, but his grandson, Edward III., his great-grandson, the Black Prince, and his great-great-grandson, Richard II., were all commemorated by gilded and enamelled bronze effigies. In addition to the intrinsic value of these, extremely precious helmets, gauntlets, weapons, and other insignia were placed above them. It became necessary to protect these, and the tombs of Edward the Black Prince, and of Henry IV. at Canterbury were palisaded with vertical bars, united at the top by heavy and enriched battlemented cornices. Six tall and massive standards confer strength and dignity, and, with their turret-like tops and buttresses, represent the great

Grille at Trinity College, Cambridge.

mystic candle-holders of the catafalque. This palisade (no doubt a conscience offering by Henry IV., like the tomb of Richard II.) was richly gilded and painted. Soon afterwards the vertical bars, for further protection, were carried upwards, and sharpened into points, like the stakes of a stockade, or the heads of weapons. Smiths exercised their ingenuity in elaborating these spikes and standards, and adding to the latter crests or bannerets. These were the precursors of the endless series of vertical railings which became peculiarly characteristic of the architectural ironwork of this country, the common area or garden railing of our streets, for which there is still a considerable demand. Probably, however, the smiths had other, and, for the times, more important work to do. The wars with France and civil wars in England found work for all, since immense supplies of armour and weapons of offence were constantly needed; also in those days, when the brunt of battle fell on the forefront ranks, who exchanged hand-to-hand blows, the hammermen were the most desirable recruits. If such days returned, it would be to the shipwrights and hammermen, who troop out in their tens of thousands from arsenals and dockyards, that we might look for our most able defenders.

The withdrawal of the smith from competition was the carpenter's opportunity, and the monopoly he began to hold of chancel and other screens, closures, rails, pulpits, &c., which were all of wood, remained unchallenged by the smith for centuries until, indeed, the time of Queen Anne. Even the traditions of smith-craft seem to have been completely forgotten, for when a door or screen had to be in iron, for security, the smith not only took his designs from the joiner, but actually pieced his forgings together with tenon and mortise, as if they were pieces of wood. There is an excellent example of this work in the screen to the chantry of Henry V. Edward IV. intended to be commemorated by a great metal monument (which had become a prerogative of royalty) with a rich grille, but no English smith could make the latter, so it was ordered abroad, and is now at Windsor. This remains, though no longer gilded, the most marvellous specimen of iron joinery in Europe. Henry VIII. was more fortunate in this respect, for his intention was fully realised. Torregiano made the gilded metal effigies, and the grille was made in London. It was of brass, because no smith in

England could have executed it in iron. Both Wolsey and Henry VIII., gorged with wealth, desired to eclipse all their predecessors in the superlative magnificence of their monuments, but Henry despoiled Wolsey, and when he himself died, no one cared to honour his memory, and no monuments were put up. The sole remains existing of all the sumptuous

Gates at Emral Hall, Flintshire (the overthrow has now fallen).

preparations made by either are the bronze candlesticks at Ghent and the black touchstone sarcophagus in which Nelson rests. Apart from the monuments to Henry VIII.'s two daughters, no further grandiose memorials were devised to commemorate our departed monarchs; indeed, until the death of the Prince Consort, they are conspicuous by their absence.

No revival of smithing accompanied the introduction of Renaissance architecture into England. Elsewhere, especially in Germany and Spain, smiths were employed on magnificently decorative and costly works, while here only the most homely requisites were wanted. Then foreign artists and craftsmen had been attracted to England in great numbers under the Tudors — Henry VIII. even sent ironfounders into Sussex, our "Black Country" of the period. Native crafts and craftsmen were naturally discouraged. Nor did the introduction of Palladian architecture, by Inigo Jones, improve the outlook, for it does not appear that he ever designed or made use of decorative ironwork. Then, again, the ironwork associated with Wren's buildings, under the Stuarts, is of the plainest description, and smithing seems the one craft in which he showed no interest or concern at all. Isolated attempts by smiths to introduce decorative ironwork were made, but few examples remain, and though interesting, these are relatively crude.

As a matter of fact, no real revival took place until the accession of William and Mary, and when it came it was wholly and entirely due to the influence of one man. It is rarely granted to an individual, however great his personality and artistic power, to leave his own lasting and comprehensive impress on art. But this fell to the lot of Jean Tijou, a worker in iron, and a magnificent designer and craftsman. His work can be instantly recognised by its quality, and with certainty owing to an elaborate book of his designs, and also through the building accounts of Hampton Court and St Paul's, which are extant. Nothing else is known about him, for he is neither mentioned in Wren's memoirs nor in any contemporary diary or letters. Presumably he was one of the French Protestants who fled to Holland in 1685, on the Revocation of the Edict of Nantes, and came to England with, or not much later than, William and Mary. His book of designs was "sold by the author in London" without other address, and his daughter married the well-placed artist Laguerre. The marriage took place in St Martin's-in-the-Fields, and two of his name were buried there. So that he was probably a parishioner, but no payments of rates can be traced, nor birth, marriage, or death certificates, or will. His story is rather a romance, and I trust its relation will not be without interest in connection with our subject.

Gate Designed by F. L Pearson. Executed by Starkie Gardner & Co.

William and Mary landed 5th November 1688, and were proclaimed in the following February. Only ten days later they visited Hampton Court, and were charmed at once by its seclusion and proximity to London. Within a month we find them in residence there, and hear of Queen Mary superintending the gardening, and settling that the royal apartments had to be rebuilt, her husband being fully occupied with more weighty business. The works were soon started, and for Mary's accommodation Wren fitted up the old Water-gallery very elaborately. We first hear of Tijou through his bill, entered in 1690, for six richly-wrought iron vanes, and a wrought-iron balcony "in finely-wrought leaves and scroll-work." This balcony overhung the river, and it was here, according to Ernest Law, the historian of Hampton Court, that the queen and her Hampton Court beauties were wont to sit and sew. This specimen of Tijou's work must have been continually under her notice, and as she gave all her leisure to architecture and gardening, she no doubt had opportunities of meeting him personally, and he seems to have quickly gained her goodwill. The most brilliant prospects at once opened out to him, and schemes and designs for work in iron of unprecedented richness were presented to her and accepted, apparently, without intermediary or estimates. These form the subject of most of the plates in the costly book of designs, engraved on copper by the best artists of the day, published by him in 1693. Though in France a book of this kind would have been no novelty, except as to the number and high repute of the engravers employed, in England it was an entirely new departure. His gratitude is expressed on the title-page, designed by Laguerre, and engraved by Van Somer in the manner approved at the Court of Versailles. Queen Mary, as Minerva, is visiting the forge, reclining on a bank of clouds, with Amorini about her, while Mercury, Vulcan, and Saturn point out the beauties of the work, in the presence of an approving group of maidens, allegorical of the Arts. Below, the central figure of a group of stalwart smiths, is presumably Tijou, a spare man with a heavy moustache. In only three years he had seemingly opened up a magnificent career, and work poured in. The garden screen, the most superb ever made, was completed and charged for in 1690, "for the circle of the Fountain Garden at Hampton Court," which had been planned at the expense of the home park,

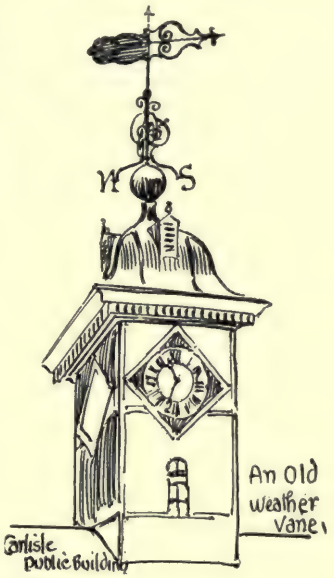
Teahouse designed and executed by J. Starkie Gardner.

by Charles II., and noted by Evelyn as in progress in 1689. Another of his bills for £1,115. 12s. 6d. comprised the three rich and still perfectly preserved gates, filling the archways of the east front of the palace. His prospects appeared the more assured since he had work of no less richness to execute simultaneously for the wealthy and influential owners of Chatsworth, Burleigh, and Wimpole, while the work for St Paul's, likely to extend over many years, was just commencing. This great prosperity was short-lived. In December 1694 his most gracious patron, the queen, died prematurely, and to the grief of all, when all work was at once abandoned. It was not resumed until the destruction of Whitehall by fire, four years later, decided the king to make Hampton Court his principal residence. Of the unexecuted works designed for the queen, one only, the king's staircase balustrade, was required from Tijou. Among the improvements was the extension of the semicircular fountain garden, to accommodate eight additional fountains, involving the removal of the rich garden screen, a place for which, minus the gates, was found in the privy gardens, then taken in hand. The gates were left as entrances from the fountain garden to the home park. The same alteration necessitated a railing 1,400 feet long to the east front of the palace, the cost of which, and perhaps the design as well, were got out by Talman, who estimated the weight at nearly 46 tons, and the cost at 5d. per pound. Tijou, unfortunately, took the contract, and for some unknown reason rendered a bill for £3,675, whilst, on Talman's figures, it should only have been for £2,194. 18s. 6d. With a man like Talman this was an unpardonable mistake, and probably the difference was never certified for payment. The king died in 1702, and Anne, who did not care for Hampton Court, was deaf to appeals, even when Tijou petitioned *ad misericordiam*, and in fear of imprisonment for debt. The royal patronage, and with it that of the court, was withdrawn. Tijou removed his works from Hampton Court, and worked for St Paul's till 1711, but here he was subject to competition, and the total, extending over twenty years, did not exceed £4,000. He retired abroad, leaving his wife a power of attorney to collect a balance due on the St Paul's work, which was paid in 1712. The tradition extant in his family, members of which still survive, is that he died broken-hearted, leaving two sons. This was probably in Paris, for we find

Louis Fordrin adopting his designs for the St Paul's choir gates, and republishing his copper plates with his own name substituted as designer.

The novelty and distinctive character of Tijou's work lies in the use of embossed acanthus leaves, rosettes, masks, garlands, crowns, and other insignia, which are sometimes in such profusion as almost to conceal the forgings. No such work had previously been seen in England, nor any such rich effects. The style he adopted was based on, but unlike the French, and he is classed as an English *maître ornamentiste* by Guilmard.

His book of designs makes it clear that he was not a practical smith, but he was certainly a very practical and most artistic embosser, giving to his work expression and character never attained by any other ironworker.



Whether, as a foreigner, Tijou's memory should be commemorated in London is for others to decide, but we must at least be fair to it. The statue on the exterior of the new Victoria and Albert Museum, selected to represent smithing, is of a person named Huntington Shaw, from Nottingham, who was, perhaps, not a smith at all, and about whom very little is known. A tablet to him, part of a larger monument, was set up in Hampton Church in 1833, and ended, when Lyson saw it, with the words "he was an artist in his way." The large monument was outside and against the church wall, and was destroyed with it in 1830, except the inscription, which was scraped and cleaned, and the lower half, left for the widow, filled up by adding the words, "he designed and executed the ornamental ironwork at Hampton Court Palace." A search, instituted by the Board of Education, failed to dis-

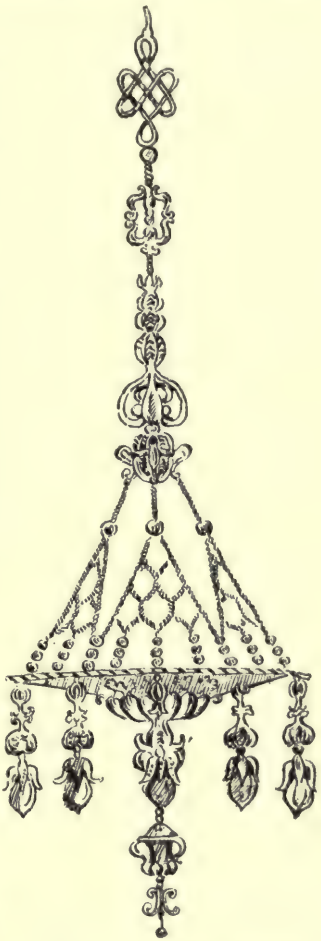
cover any reference to Shaw, and settled beyond all doubt that Tijou was alone responsible for all the important work there. There is no mention anywhere of Huntington Shaw, and Nottingham was not, and never has been, a school of artistic smithing. Search among parish books and wills has elicited the following facts:—He was born 24th June 1660. He probably worked in some capacity at Hampton Court, where he became a friend of Queen Anne's master mason, Benjamin Jackson. He lived in Francis Street, off Regent Street, was rated at 8s., and died 20th October 1710, aged fifty-one. Feeling "sick and weak of body," he made a will in favour of his wife Mary, bequeathing to her bills, bonds, and book debts, whence it appears that he was in a business of some kind. The widow died in 1717, leaving everything to Jackson, who continued to reside in the Francis Street house There is no other clue to the nature of his business than the tradition which found expression in 1833, more than a century later. He might have been a stone carver or a contractor.

If Tijou, who spent his working life in England, and of whom we have a portrait, is not to be commemorated, his honours should not be appropriated without reason by a mythic smith. There are many other smiths, his contemporaries, who have a right, Tijou being passed over, to occupy the position.

When Tijou was at his zenith, he must have needed many assistants, and several of these I am able to trace. One, a working man, in 1707, having successfully completed, after three years' work, a garden house at Melbourne, in Derbyshire, set up a forge in Derby, and carried on an extensive trade for many years there and in the neighbouring counties. Two brothers set up in Chester, apparently some eight years after Tijou's departure, and executed almost all the fine work seen in that county and those adjacent (see page 213). Another was working in Bristol in 1710, and obtained great patronage all over that part of England and Wales. The work of each is perfectly distinctive, and easily recognised, but all agree in making a lavish use of acanthus and rosettes, in the manner of Tijou, but all equally fail when aspiring to higher flights, such as masks.

Contemporary with these was an "ingenious" smith, Thomas Robinson, who carried on works at Hyde Park Corner, who is first heard of as a competitor of Tijou's for the work at St Paul's, where he executed some beautiful iron-

work between 1699 and 1711. In the latter year he produced the fine screen and gate in the garden of New College, Oxford, and probably also the work for Trinity College, Oxford, that at Belton, Beddington, Carshalton, and the gates now at Devonshire House. His gates are designed in different proportions to those of Tijou and his school, being more lofty and transparent. His use of acanthus and other embossing was always sparing, and its execution and drawing poor. He was essentially a smith with a natural sense of proportion and dignity, and produced many of the fine screens to forecourts which afforded the smith in those days the grandest scope. Unfortunately, nearly all of these were destroyed during the craze for landscape gardening, which meant bringing the grass sweeps up to the front door. Another great London smith, who perhaps started somewhat later, made most of the work about Cambridge, and some of the best round about London. The gates remaining about London and its suburbs, and in other cities, are usually merely wickets with railings separating from the road a forecourt, now generally converted into a garden. They are rarely local work, for the best examples can be traced to central London smiths, who must have been in a



A Pendant executed by Starkie Gardner.
Ernest George, Architect.

fairly extensive way. The finest specimens, made for the large houses of the nobility, with their grand forecourt screens, have nearly all disappeared. The most magnificent was to Powis House, in Great Ormond Street, taken down in 1777. That to Buckingham House disappeared under George IV. The acquisition by Government of Buckingham, Marlborough, Burlington, Montagu, Somerset, and Hertford Houses has at least saved the open spaces, but many others, like Gloucester and Harcourt Houses, and the old War Office, have quite recently fallen a prey to the speculative builder. The London squares left by the great building owners were merely a recognition of the necessity of the forecourt, one serving for many houses in common, and were not railed off, but kept open for the use of coaches, &c.

During the time of Tijou and his immediate successors, and while Wren lived, designing the work had been as essentially a part of the smith's work as its actual production. The work of Tijou has never been surpassed, and Bakewell possessed an innate knowledge of constructive design and sense of proportion, the value of light and shade, and the balance of plain vertical bars in juxtaposition to rich acanthus and scrollwork, which is apparent in every work he produced. If the Roberts and Edney in their more daring flights occasionally lay themselves open to criticism, their work is always grand and impressive, and as expressive of the best English art in contemporary architecture and painting. The essentially English treatment of Robinson and his school is most refined, and never approaches the commonplace or vulgar in design. This school was developing rapidly along the best lines, when Gibbs, in his "Book of Architecture," 1728, claimed the designing of ironwork to be within the architect's domain, and banished craftsmen's designs from architecture as effectually as Kent had banished it from the gardens. Owing to this the great smiths who followed Tijou left no equally important successors. The gates and window grilles to the Radcliffe Library, the screen to the forecourt at the Horse Guards, grilles at the Mansion House and Bank of England are examples of architecturally designed ironwork. The smith, however, made little, if any, change in his traditions, except towards severity, till the days of Chippendale, when designers inclined to the rococo, Chinese, and Gothic, among those who tempted him from the path being Batty Langley. Little by

little the craftsmen were left nothing to design, until finally the brothers Adam designed the entire decoration, and also the contents of the houses they built, so much so that they did not permit even a picture or piece of furniture to be placed without their advice and consent. Thus the *maîtres ornamentistes*, or professional craftsmen-designers, the very originators of all applied design, were finally squeezed out of existence. Had architects as capable succeeded the Adams, this would have been of small moment, but such comprehensive gifts are given to

Ornamental Panel.

Designed by Romaine-Walker and Besant, Architects.

few, and it seems probable enough that the almost utter collapse of all art in the country within a few decades in the early Victorian days, may be traced to the suppression of the artist craftsman. It must be conceded, *ipso facto*, that no one should be more qualified to design for the applied arts than the properly trained masters of the crafts concerned in them ; and also that not every born designer, now or in the past, is able or wishful to practise architecture.

In the absence of any characteristic examples of ironwork of the Chippendale period, I have ventured to exhibit pictures

of a fine pair of gates in the rococo taste, and a teahouse in the Chinese designed and executed by myself. In the teahouse, the roof and water spouts are of green copper, the ironwork of red lacquer and gilt, the floor marble.

The architect sets the style, and craftsmanship must follow. Thus the modern metal-worker becomes a man of many styles. It has fallen to me, as one of them, to produce metal-work of all descriptions, and in every style and period that a name can be put to. It is gratifying to have such varied work to do, and the varied uses, to which modern buildings are put to, may require many styles of architecture. But my own sympathies are with those who make some one style of art their own, developing it in adapting it to modern requirements, and so endowing it with unsuspected beauty and interest. Thus may we maintain the grand old characteristics of all English art in the past, reticence and scholarly restraint. In designs for metal-work especially, we need not seek to import styles from abroad, when those developed in our own country harmonise so entirely satisfactorily with its scenery and our temperament. Magnificently and characteristically English gates by Tijou, Robinson, Warren, and many others have been handed down from the eighteenth century. Various examples of some of these and of others, both old and new, by different masters, were given in illustration of the lecture.

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